



***NORTHEAST DEER***  
***TECHNICAL COMMITTEE***



**Transactions of the 32nd Annual Meeting**  
**Fundy National Park, New Brunswick, Canada**  
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## PROVINCE / STATE REPORTS: 1995

### CONNECTICUT

The 1995 deer hunting seasons allowed for the taking of 12 deer during 93 hunting days (15 September - 31 December). Of 12 potential deer that could be taken by each hunter, 5 had to be antlerless and 7 could be deer of either sex.

During the 1995 deer season, 13,740 deer were taken by 37,957 deer hunters. This harvest increased by 32 percent over the 1994 harvest (10,438). In 1995, free replacement antlerless tags were issued during the regular 3-week shotgun/rifle season from check stations to hunters harvesting an antlerless deer. Replacement antlerless tags were issued in deer management zone 11 only in southwest Connecticut, where deer populations remain high.

No deer hunting fatalities were reported in 1995. In November, a nonfatal archery deer hunting accident was documented when a bowhunter fell from an elevated tree stand. The hunter was not wearing a safety harness.

After extensive preparation and planning, a controlled deer hunt was implemented at Bluff point, a 1.25 sq. Mile Coastal Reserve in Groton, from January 2-13. Extensive research documented severe browsing, bark stripping, and over-winter starvation of deer at the site. Hunters successfully removed 229 deer. Biological data collected yielded information about deer health in areas of high deer density, and changes in home range size with respect to hunting pressure. Research will continue after the hunt, focussing on home range size, and recovery rates of vegetation in a formerly high deer density area.

The Wildlife Division continues urban deer research efforts to increase effectiveness in managing problem deer herds. Project objectives include: i) identifying and characterizing areas that contribute to the urban deer problem, ii) determining home range size, core area, and seasonal use of residential areas, and iii) assessing the community's perception of the deer problem and acceptable management options.

*- Howard Kilpatrick, Connecticut Deer Project Leader*

SEASON	HARVEST		PERMITS		SUCCESS (%)	
	1994	1995	1994	1995	1994	1995
Archery	2,264	2,701	13,957	14,411	16.2	18.7
Antlerless	n/a	29	n/a	n/a	n/a	n/a
Landowner	1,180	1,486	5,756	5,740	20.5	25.9
Shotgun	6,639	9,034	31,270	31,243	21.2	28.9
Muz.loader	355	490	9,333	9,545	3.8	5.1
TOTAL	10,438	13,740	60,316	60,939	17.3	22.5

\*\* Other mortality reported in 1995: Road kills=2,636; Crop Damage=564

**MAINE**

Maine's Any-Deer permit system reached the decade mark during 1995. Designed to control deer population growth by regulating the firearm harvest of antlerless deer, 29,887 Any-Deer permits were allocated to hunters in 14 of Maine's 18 Deer management Districts (DMDs) to achieve pre-determined doe harvest quotas. Any-Deer permits are DMD-specific; they may be used during the regular firearm (October 28-November 25) and the special muzzleloader (November 27-December 9) seasons. Although antlered bucks (3" minimum antler length) were legal quarry for all deer hunters, only hunters who possessed a valid Any-Deer permit could kill a doe or fawn during these firearm seasons. Any-Deer permittees were drawn in a random computer lottery from among 84,092 resident and 11,671 nonresident (43 states and 5 Canadian provinces) applicants. On average, 88% of available Any-Deer permits were issued to residents. Of the 29,887 available Any-Deer permits, 5,510 (18%) were issued to qualifying landowners in a separate early lottery. During the special archery season (September 28-October 27), archers could hunt deer of either sex without an Any-Deer permit. As before, the bag limit on deer remained one deer per hunter per year, Sundays were closed to hunting, and the opening Saturday of the regular firearm season was restricted to Maine residents only.

Overall, 27,384 deer were registered during 1995, of which 1,151, 25,710, and 523 were taken during the archery, regular firearm and muzzleloader seasons, respectively. Relative to 1994 (24,683), deer registrations increased by 2,701 (11%) during 1995. Among seasons, an all-time record was set for the archery season, as the 1,151 deer kill increased by 435 (61%) relative to 1994. This record deer kill occurred despite a 12% drop in sales of archery licenses. A record-high muzzleloader deer kill occurred during 1995, as the black powder harvest increased by 139% above the previous record set in 1994 (219 deer). A strong increase (58%) in sales of muzzleloader hunting permits, combined with the addition of an extra week of hunting in central and southern DMDs, were largely responsible for the record deer harvest during the black powder season. Two other factors contributed to above-average deer harvests in 1995. First, Maine's deer herd increased markedly during 1995, in response to a very mild winter and subsequent high fawning success. It is noteworthy that road-kills of deer increased nearly 20% in 1995, relative to the previous year. Secondly, firearm and black powder deer hunters were treated to an abundance of tracking snow in most parts of the state. This situation fostered higher hunting success, particularly late in the firearm season and throughout the subsequent black powder season.

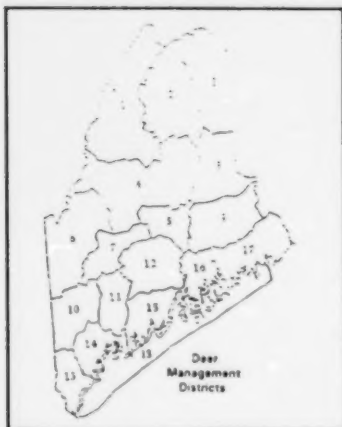
A quota of 5,028 adult does was set in 1995 to achieve deer management objectives in Maine's 18 DMDs. Doe quotas ranged from 0 in DMDs 1, 2, 3 and 17 to 1,200 in DMD 12. The statewide harvest of adult does in 1995 was 5,982, or 954 (19%) above the pre-set quota. In light of the strong increase in deer population which occurred in 1995, this level of harvest is not considered harmful to achieving our population objectives. Does killed during the either-sex archery hunt contributed 462 adult female deer to these quotas. In addition, a total of 3,409 fawns of both sexes was tagged by Any-Deer permittees (3,177 fawns), and archers (232). Overall, 9,391 antlerless deer were tagged by deer hunters during 1995.

The 17,993 antlered bucks taken in 1995 ranks 3rd highest since we began record-keeping in 1954. Maine's highest 2 buck harvests occurred during 1956 (18,655) and 1958 (18,239). During 1995, the top 5 buck-producing DMDs were DMDs 11, 12, 14, 13 and 7, all in the central and southern parts of Maine. Among the 17,993 antlered bucks taken statewide, roughly 8,100 (45%) were yearlings sporting their first set of antlers, while nearly 3,100 (17%) were mature bucks 4.5 to 15.5 years of age. Button bucks (male fawns) are not included here. They are reported as antlerless deer, since their velvet covered nubbins (pedicles) never attain legal length (3").

Of the estimated 202,000 hunters pursuing deer in Maine during 1995, 172,000 were residents who tagged 22,835 for a success rate of 13%. The 30,000 nonresident deer hunters registered 4,549 deer for a 15% success rate. Whether or not a hunter was restricted to bucks only hunting markedly influenced chances for killing a deer. Success rate for buck hunters averaged 9%, while that among Any-Deer permittees was 39%. Lowest success is typically noted among archers (9%) and black powder hunters (6%). Among all hunter groups, deer hunting success improved in 1995



to 13.5% (it was 12% in 1994).



Maine's 1995 post-hunt deer population was slightly over 250,000 (or nearly 9 deer per square mile) statewide. This represents a 20% increase in the wintering herd over 1994 estimates (210,000). As noted above, mild wintering conditions combined with several years of rather conservative doe harvests have set the stage for a strong recovery of deer populations, particularly in central and southern DMDs. Maintaining the wintering herd within the 250,000 to 300,000 objective range set for Maine will depend on continued above-average winter survival and appropriate doe harvests in each DMD.

- Gerald Lavigne, Maine Deer Project Leader

Sex and age composition of the 1995 deer harvest in Maine, by Deer Management District

Sex/Age Class	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
Ad. Bucks	930	615	292	1318	616	1168	1008	1055	426	1706	1294	2815	1229	968	1275	615	472	193	17993
Ad. Does	9	20	11	192	106	134	426	480	48	780	615	1459	562	381	428	60	18	253	5982
Fawns	4	3	2	105	57	76	260	246	28	453	363	862	344	241	184	31	5	145	3489
TOTAL	943	638	305	1615	779	1378	1694	1781	502	2939	2272	5134	2135	1590	1887	706	495	591	27384

## MARYLAND

### SIKA DEER

Sika deer inhabit marshes, swamps and associated woodlands and agricultural fields. Populations exist mainly in Dorchester County and on Assateague Island in Worcester County. This species, a native of western Asia, became established on the lower Eastern Shore after being released by private citizens on James Island (Dorchester County) and on Assateague Island (Worcester County) during the early 1900s. Hunting season results indicate that the Dorchester population remains stable with 1,276 sika deer taken in 1995 compared with 1,140 in 1989. The harvest of stags and antlerless sika deer was nearly equal.

### WHITE-TAILED DEER

Maryland's total deer harvest for 1995 was 61,949 (including 315 deer taken on special hunts), a 22% increase from the 50,871 deer killed in 1994. Antlered bucks numbered 35,150 and antlerless deer (does and button bucks) totaled 26,780 (19- sex unknown). The harvest of antlered bucks increased by 6555 and the harvest of antlerless deer increased by 4924.

**Bow Season** - The popularity of bow hunting continues to increase in Maryland. The bow season opens in mid-September and closes at the end of January. DNR's last survey indicated that 53,300 people bow hunt and each bow hunter spends an average of 13 days pursuing deer. The success rate of Maryland bow hunters has risen from 9 percent

in 1985 to 30 percent in recent years. The amount of hunting effort required to take a deer with a bow has remained stable during the same time period.

In 1995, bow hunters took 12,397 deer including 7792 (63 percent) antlered bucks and 4602 (37 percent) antlerless (does and button bucks). Does comprised 28.5 percent of the total bow harvest, while button bucks were 8.6 percent of this total. The 1995 bow harvest topped the 1994 season take by 1073 deer. The 1995 total bow kill broke last year's previous record harvest.

*Firearms Season -* A total of 96,303 firearm hunters averaged 4.7 days of hunting during the two week firearms season. The success rate of firearms hunters has climbed from 20 percent in 1984 to 40 percent in recent years. Maryland's firearm season begins on the Saturday following Thanksgiving and closes 14 days later.

This record 1995 firearms harvest totaled 39,721 (including special hunts) compared to 31,756 in 1994, an increase of 7965 deer. The previous Maryland record firearms harvest totaled 35,133 in 1992. Excellent hunting weather lasted for the entire two week season. Firearms hunters killed 64 percent of all deer harvested in Maryland in 1995. A total of 22,691 antlered deer (57 percent) and 17,017 antlerless deer (32.2 percent does and 10.6 percent button bucks) were harvested. The kill of antlered bucks rose by 4823, and the antlerless harvest increased by 2709 does and button bucks.

Fifty-four percent of the firearms season deer were killed with rifles and 45 percent taken with shotgun slugs. The remaining one percent were harvested by bows, muzzleloaders and pistols.

Included within this record firearms harvest are 1028 deer taken in Maryland's first Youth Deer Hunt (Nov. 18, 1995). Hunters under 16 years of age took 683 bucks, 206 does and 139 button bucks. An unarmed licensed adult over 21 years of age accompanied each young hunter. This provided an opportunity for the young hunter to receive direct assistance in deer hunting techniques and safe firearm handling. In addition the youngster experienced the comradeship that is such a large part of deer hunting.

Each young hunter, who participates in the Nov. 16, 1996 deer hunt, can receive an attractive iron-on arm patch commemorating their hunt. The young hunter must visit a official deer checking station on this day and, they will receive this blaze orange and black patch. The Youth Deer Hunt patch is provided compliments of the Chesapeake Chapter of the Safari Club International.

*Muzzleloader Season -* The muzzleloader season included three days in October (Oct. 19, 20, 21) and two weeks - the last week of December and the first week of January. Muzzleloader hunting continues to become more popular. Over 38,000 muzzleloader hunters participated, and each hunter spent an average of 3.7 days muzzleloader hunting. Currently blackpowder hunters experience a 20 percent success rate which is up from 5 percent in 1984.

The muzzleloader harvest rose to 9831 in 1995 from 7371 in 1994, which is a new state record. Forty-seven percent of the muzzleloader-killed deer were taken in the October hunt. The 1995 antlered harvest increased by 23 percent and the antlerless harvest increased by 44 percent for the entire muzzleloader season compared to the 1994 season. In 1995, 4667 antlered deer (47.5 percent) and 5161 antlerless deer (41 percent does and 11.5 percent button bucks) were killed during muzzleloader season.

*Statewide Deer Plan -* Maryland is currently conducting an update of a statewide deer management plan. Mark Duda of Responsive Management has taken a statewide survey of hunters, landowners and general public. This survey will obtain information concerning the citizens attitude toward deer population levels and

DNR's management efforts. Public meetings will be held across the state to gather information from other stakeholders. After all the comments are collected, a five year deer plan will be created.

*Suburban Deer Populations* - Maryland's deer project worked with Montgomery County to create a deer plan for their special needs. This resulted in increased deer education efforts with the Agriculture. Extension Offices. Four county parks and one state park will conduct managed deer hunts as a result of this plan. Howard County has just begun similar efforts to create a deer plan with the assistance of the Wildlife Division.

*-Douglas Hotton. Maryland Deer Project Leader*

## **MASSACHUSETTS**

The 1995 Massachusetts deer seasons set records for the archery, shotgun, and overall total harvests. Good opening day weather and high deer populations were key factors. Deer hunter surveys indicated that between 70,000 and 75,000 hunters pursue deer in the state, with >90% participating in the shotgun season, 22,000 to 26,000 bowhunters, and 16,000 to 22,000 primitive firearms hunters. Physical condition indices indicated that deer were in excellent condition, with statewide antler beam diameters averaging 18.2 mm and yearling male weights averaging 105 pounds.

### **CURRENT POPULATION ESTIMATE**

We estimate the 1996 deer population to be approximately 85,000 statewide. Rates of population growth have exceeded 20% in several eastern deer management zones (DMZs) in recent years. Although these estimates are based on harvest levels, hunter surveys indicate that hunter densities in these eastern DMZs have not increased at nearly the same rate as deer harvests since 1985. Because much of the eastern part of the state is unavailable to deer hunters due to town bylaws restricting firearms discharge, estimates of deer density are likely biased low. Western DMZs have had stable deer densities for the last decade, with 15-20 deer/mi<sup>2</sup> in the southwest and about 8 deer/mi<sup>2</sup> in the northwest.

### **1995 HARVEST**

Season	Adult Males	Females	Male Fawns	Total
Paraplegic	2	9	2	13
Archery	1091	561	249	1901
Shotgun	4534	2839	758	8131
Primitive	235	611	168	1014
Subtotal	5862	4020	1177	11059
Quabbin	72	184	28	284
Total	5934	4204	1205	11343

### **1996 DEER SEASON PROJECTION**

We estimate a 1996 total harvest of approximately 13,000 deer. Because many DMZs in central and eastern Massachusetts have exceeded their population goals or have extremely rapid rates of growth, the Division of Fisheries and Wildlife has dramatically increased the number of antlerless deer permits in these DMZs to stabilize deer herd

growth rates. Thus, we have allocated 32,675 antlerless deer permits for 1996, a 54% increase from 1995 (21,262). Because deer hunter numbers have not increased since 1985 and hunter access in central and eastern Massachusetts is decreasing, we are taking steps to try to level off deer herd growth rates while there is the opportunity.

#### **NEW REGULATIONS OR MANAGEMENT CHANGES**

There are several regulatory changes that will take effect for the 1996 seasons. The Fisheries and Wildlife Board changed the boundaries of several western DMZs to allow better allocation of antlerless deer permits to areas with higher deer densities. This resulted in the creation of an additional DMZ through the division of one DMZ into 2, thus increasing the number of DMZs from 14 to 15. Also, in 2 DMZs in northwestern Massachusetts, antlerless deer permits will be required to harvest antlerless deer during the 3-day primitive firearms season. The remaining 13 DMZs will remain either-sex during the primitive firearms season.

In recent years several DMZs have had more antlerless deer permits available than applicants. This year we will allow hunters who have applied for antlerless permits and not received one through the regular lottery to reapply for a permit in DMZs with permits available after the lottery. These permits will be available on a first-come first-served basis.

#### **RESEARCH**

We will begin a deer population research project after the 1996 hunting seasons. This research will involve capturing deer via helicopter netgunning, marking deer with radiocollars, and conducting aerial resight surveys to develop deer density estimates. We will begin in 2 study areas in eastern Massachusetts, and over the next several years select new study areas in central and western parts of the state, while resurveying the eastern area. The objective is to better calibrate harvest indices to actual deer densities because hunter access varies from low in eastern Massachusetts to relatively high in western Massachusetts. We think that we grossly underestimate deer densities in eastern Massachusetts by relying on harvest-based indices. Although the trends are likely valid, as deer densities increase local authorities demand population estimates in order to justify town bylaw changes liberalizing access to hunters.

#### **LEGISLATION**

The Massachusetts Legislature passed a bill that will allow hunters to use rifled barreled shotguns during the shotgun deer season.

*- John McDonald, Massachusetts Deer Project Leader*

#### **NEW BRUNSWICK**

In 1995 a total of 76,030 residents purchased licences to hunt white-tailed deer with a gun; an additional 792 hunted with a bow. A total of 1,911 non-residents purchased licences to hunt with a gun and an additional 109 hunted with a bow. Total licence sales were 78,842, a decrease of 11.8% from the 1994 total of 89,362. A proportion of this decrease in licence sales may have been the result of people purchasing licences in 1994 to avoid the upcoming mandatory hunter education course for new hunters in 1995. The total harvest of 10,944 was an increase of 7% from the 1994 harvest of 10,216 deer.

New Brunswick residents harvested 97% of the total deer harvested with non-residents harvesting 3%. One in every seven resident hunters harvested a deer for a success rate of 14% and approximately one in every seven non-residents harvested a deer for the same success rate of 14%. Resident and non-resident bow hunters harvested 94 deer, yielding a success rate of 10.4% with 36% of these deer killed in Zone 22. Forty-four percent of all deer harvested by gun were registered in Zones 16, 20, and 22 with 60% of the total harvest occurring during the first and last weeks of the

4-week season. Ten percent of the harvest (1135) occurred on opening day of the gun season. A total of 58% of the harvest was adult male, 31% adult female, and 11% fawns.

A total of 25,421 hunters applied for the computerized antlerless deer tag draws of which 18,150 were successful. Successful applicants received their validation tags in the mail by mid-September. Hunters with antlerless deer tags harvested 6442 deer in the 1995 season, for a success rate of 35.5%. The remaining 60,692 hunters, hunting only antlered deer, harvested 4,502 deer for a success rate of 7.4%.

#### 1996 SYNOPSIS

Wildlife Management Zones 1,2,3,4,5,8, and 9 will remain closed to deer hunting for the 1996 season and Zones 6,7,10, and 11 will remain open for antlered deer hunting only. The number of antlerless deer permits available has increased 7.7% to 18,825 for the 1996 season. Deer herds are showing improvement in many zones and received some respite during winter 1995-96 because of below average winter severity conditions across the province.

- Gerald Redmond, Deer Project Leader

#### NEW HAMPSHIRE

The 1995 deer season in New Hampshire set a new state record for buck kill. The total buck kill was 7400 deer, eclipsing the old record of 7250 set back in 1967. The doe kill was 3807 for a total kill of 11,207. Our basic season framework was the same as previous years with a 92-day either sex archery season, an 11-day either sex muzzleloader season immediately preceding a 26-day rifle season. Either sex hunting during the rifle season varied from zero to 10 days depending on which of the 15 Wildlife Management Units was being hunted. Archery hunters also set a new record with a total kill of 1580, as did muzzleloaders with a total kill of 2837.

Distribution of the deer kill continues to shift to southern and central sections. We are becoming increasingly concerned over increasing human populations in all of southern New Hampshire, but especially southeastern areas. This trend has contributed to reduced access by hunters, resulting in less control over densities. While yearling antler beam diameters remain high, we are becoming increasingly concerned over conflicts with cultural carrying capacity. Due to our northern climate and past management practices, our highest densities average just under 15 deer per square mile. However, since the model used to derive these figures is harvest driven, reduced harvests due to factors other than lower populations will influence estimates. This may be occurring in the southeast.

It is our strong desire to implement some form of increased ability to harvest deer in coming years. This will likely take the form of a combination of an extra either sex archery tag being made available to anyone interested in purchasing them, and the availability of an allotment of either sex or antlerless permits to all deer hunters. Past efforts to institute an extra archery tag alone have been unsuccessful.

Since our populations are still at a fairly low level and public satisfaction is high due to traditionally very low densities, we may have the opportunity to significantly delay overpopulations from occurring. We have recently completed a survey of state residents to determine their preferences for deer, moose and bear numbers. In all but northern New Hampshire (where they wanted more deer), the clear preference was to maintain densities at current levels. There was no significant difference between hunters opinions and those of the general public. We will be completing a management planning process during this next year to set population goals for each region of the state.

One area of the state, Long Island in Lake Winnepesaukee, does currently have an overpopulation of deer. The island is about 2 square miles and has an estimated population of about 120 deer. While this density is lower than most areas considered to be a problem, natural vegetative productivity is very low and human densities are extremely high. The Department has been working since November of 1994 with a citizens task force to devise a reasonable solution to the problem. This culminated with formal Commission approval to go forward with a sharpshooting operation to reduce



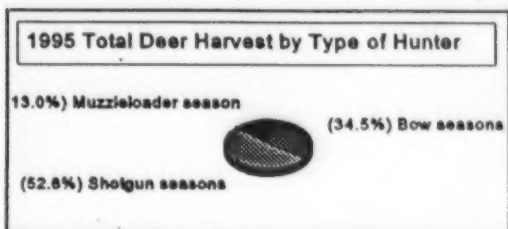
the population to near 30 deer. We plan to move forward with that action this fall. A second series of discussions will take place soon to develop a long-term control plan.

- Steve Webber, New Hampshire Deer Project Leader

## NEW JERSEY

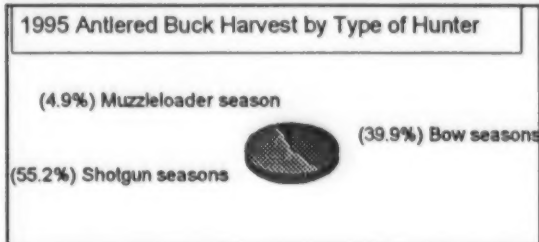
### 1995-96 DEER SEASON SUMMARY

A number of harvest records were established in the 1995-96 deer seasons, including: total harvest (59,769); antlered harvest (28,073); and antlerless<sup>1</sup> harvest (31,696). The new total harvest represents a 16.2 percent (8,327 deer) increase over the previous record harvest taken during the 1994-95 deer seasons. Factors contributing to the record harvest include the following: population management strategies of herd reduction on 66.3 percent of the State's deer range; expansion of the "Bonus Deer Tag" program during the fall bow season to include 41 of the 65 management zones; additional days of permit shotgun hunting in January; and, generally good weather throughout the six deer seasons. The antlerless harvest was composed of 23,359 female and 8,337 antlerless male deer.



The total antlerless harvest was within 7 tenths of one percent of the statewide antlerless objective.

Harvests by season during the 1995-96 hunting period were as follows: Fall bow - 15,821 (record); Permit bow - 3,992; Six-day firearm - 14,071; Permit muzzleloader - 7,746 (record); Permit shotgun - 17,359 (record); and Winter bow - 780. Overall hunter success rates during the three permit seasons were: permit bow 11.7 %, permit muzzleloader 30.5 % and permit shotgun 42.3 %. A record trophy buck was taken during the permit bow season. The buck scored 189 4/8 points in the typical category and probably ranks among the top 15 all time Pope & Young deer.



### COMMUNITY-BASED PLAN FOR THE MANAGEMENT OF SUBURBAN DEER POPULATIONS

The Community-Based Deer Management Program, a cooperative agreement between the Division and local government agencies allowing for the development of alternative deer population control measures, was implemented at the 2,000 acre Watchung Reservation, Union County in early 1995. The County is proceeding with a five year program designed to reduce the pre-fawning, deer density to 20 deer per square mile. A total of 50 deer were removed by agents in 1995 and 167 deer were removed in 1996. Implementation of a herd reduction program is also scheduled at Lewis Morris County Park, Morris County this fall. Although 21 other local governments have indicated some interest in the program, at this time deer have only been removed from the Watchung area.

### 1996 DEER SEASON PROJECTIONS

Severe weather during the 1995-96 winter period had a minimal impact on the State's deer resource. Approximately 150,000 deer will occupy the State's 4,734 square miles of deer range before the fall bow season begins on October 5. Population densities will range from 10 to over 70 per square mile, with a statewide average of 32. The options of pursuing deer with bow, muzzle-loading rifle and shotgun will again be available to properly licensed sportsmen and women in all major management zones and in many special areas. The bag limit remains two deer per

<sup>1</sup> antlerless deer consist of fawns of either sex and adult females.

license or permit in most seasons and zones. The number of special deer permits for all three permit seasons totals 107,127. A total of 102 potential deer hunting days will be available (Oct. 5, 1996 - Feb. 1, 1997). The 1996 total deer harvest is projected at 61,814 deer. Population strategies include herd reduction on 3,342 sq. mi. (70.6%), stabilization on 1,188 sq. mi. (25.1%), and, increases on 204 sq. mi. (4.3%) of deer range. Cultural carrying capacity is the primary consideration (as opposed to biological carrying capacity) on 86 percent of the deer range. Although cultural carrying capacity is the limiting factor over most of State, it should be noted that only 4 percent (358 farms) of New Jersey's farmers reported deer damage during the 1995 growing season.

#### HIGHLIGHTS OF REGULATION CHANGES FOR 1996-97

A significant change has occurred in the way the deer resource will be allocated during the 1996-97 deer seasons. The NJ Fish & Game Council has recognized muzzleloader hunters as a distinct group of deer hunters which are entitled to a share of the deer resource in proportion to their numbers. It is estimated that 20,000 deer hunters participate in the muzzleloader season, 95,000 are shotgun hunters, and 53,000 bow hunt. In accordance with this approach, season frameworks have been modified so as to provide for a more equitable distribution of the antlered buck harvest among the three types of hunters. Specifically, the fall bow season has been shortened from six to four weeks, the permit bow season has been increased from three to four weeks, and two additional days of early muzzleloader hunting have been authorized prior to the traditional firearm "buck" season. Other changes include modifications to the "Bonus deer tag" program. During the fall bow season, zones will fall into one of three categories: no bonus tags, single bonus tag zones and multiple bonus tag zones. Modification of the program involves the addition of multiple bonus tag zones, where providing bow hunters only harvest antlerless deer, they will be awarded bonus tags throughout the fall bow season. In these zones bow hunters could legally harvest one antlerless deer per day (24 antlerless deer for the season). However when considering success rates, multiple bonus tags are expected to increase the number of antlerless deer taken during last year's fall bow season by 11 to 29 percent, depending on the zone. Other regulation changes include: Supplemental Deer Permit and Transportation Tags will be valid on the date of issuance during the six-day firearm "buck" season (December 9 - 14, 1996) in roughly half the State (Zones 13, 16-37, 39, 42-49, 51-53, 55, 61, 63 and 65); the winter bow season will run concurrent with the permit muzzleloader and permit shotgun seasons; deer decoys will be permitted statewide during archery seasons; and three days of antlerless only, permit shotgun hunting are scheduled for November 25, 26, & 27 in zones 13 and 36. In addition, it is likely that unrestricted baiting for deer will be legalized in all but the three most urbanized counties of the State. This legislative action was initiated by the agricultural community. It has passed the Assembly and will be heard by a Senate Agriculture Committee on Thursday. The Assembly version passed by a margin of 76 to 1, and the Senate bill is likely to pass in a similar manner.

#### ONGOING RESEARCH

The main objective of our research program is to provide the database necessary for managing the deer resource. Most of our data is collected through a mandatory checking system. Information on location, sex, antler point, land ownership, etc. is collected on all deer. Condition information (age, dressed weight and antler beam diameter) is collected from a statewide sample by Division biologists and other personnel on high harvest days during the six-day firearm and permit shotgun seasons.

In the future, we would like to dedicate additional time and resources to developing and improving population modeling techniques and evaluating data collected since 1972.

*- Daniel M. Ferringno, New Jersey Deer Project Leader*

**NEW YORK****A NEW LOOK FOR NEW YORK'S DEER MANAGEMENT PROGRAM**

The Bureau of Wildlife is embarking on new directions in wildlife management. Customer service, public participation, staff empowerment and team work are all watchwords of this new direction. Deer management in New York is a team approach. Regional biologists, a communications specialist and central office biologists work with the public to deliver the deer management program.

1. We have brought a number of publications for each of the member states and provinces: *New York's Deer Management Program*, *The Need for Deer Population Management*, *Citizens Task Forces on Deer Management*, *The September 1996 Issue of Big Game Program Briefs* and *A Survey of Deer Hunters in New York State*.

2. Deer Harvest 1995:

Bucks.....	113,566	Firearm.....	166,430
Statewide Total.....	188,284	Bow.....	21,854

3. **Deer Contraceptive Research** - Contraceptive vaccines offer a potential new management tool for regulating growth of locally-overabundant deer herds which cannot be managed by hunting. However, it is unclear whether sufficient numbers of deer can be cost effectively treated to control population growth. In addition, the efficacy of different contraceptive vaccine and adjuvant combinations, and the behavioural side-effects of vaccines on treated deer are not fully understood. Specific objective of this project are to assess the: 1) impacts of contraception vaccines on behaviour and physical condition of deer; 2) efficacy of remote-delivery contraception to control population size in deer; 3) cost-effectiveness of contraception as a management tool for free-ranging deer populations; and 4) public understanding and acceptance of this potential new deer management technique.

In 1995-96, we: 1) developed collaborative research and communication plans among Cornell University, SUNY-ESF, NY DEC and others; 2) initiated long-term, comprehensive field studies at Seneca Army Depot, and the Town of Irondequoit; 3) planned for a potential lower Hudson Valley site for field-testing contraceptive vaccines; 4) developed survey procedures collaboratively with Cornell's Human Dimensions Research Unit that will evaluate public attitudes and community support for this new technology; 4) secured necessary permits, licenses, animal-care protocols, and technical support for field research; and 5) leveraged in-kind support, consultation, and immunocontraceptive drugs valued at more than \$50,000.

At Seneca Army Depot, a gate was added to an existing enclosure to use for a controlled study of vaccine efficacy and behavioural effects. Researchers captured 75 and placed them in the enclosure in preparation for vaccine testing.

At Irondequoit, a population model was developed which can help plan for and evaluate immunocontraceptive efficacy. SUNY-ESF researchers used physiological data collected from deer culled from Irondequoit in late winter 1995 and 1996 to build the model. The model predicts the number of deer which need to be treated with contraceptives to reduce or hold the population constant. The number required depends on population size, population age-sex structure, and carrying capacity of the area. The model also pointed out that cost per deer for contraception are not constant, but depend on deer population size relative to carrying capacity.

The researchers asked for about \$250,000 from the New York State Legislature, but received \$100,000. By dropping work at a Hudson Valley site and obtaining some funds from other sources, the funding shortfall was reduced to about \$30,000. Other funds are being sought, but the future of the work is uncertain.

4. **North Haven, Long Island** - Mark Lowery, our Regional biologist, reports that after about 3 years of wrangling, the DEC is being sued. Public meetings have been held. Citizen Task forces have met and recommendations have been made. Last year permits were issued and deer were killed from 15 Oct.-15 May. Permits will again be issued this October 15, 1996- hence the lawsuit. The village of North Haven tried to get a permit to trap deer, kill them, process the meat and donate the meat to the needy; the Village would do this at their cost. Unfortunately, our law does not permit trapping deer. We have asked the Court to dismiss the case.

5. **Deer Feeding** - The Governor vetoed a bill which would have prohibited the feeding of deer within 300 feet of a public highway. The rationale was, the bill said "deer" not "wild deer". This would have impacted fallow deer

farms, zoos, wildlife parks and shooting preserves etc. The Governor also charged the DEC and the Dept. Of Ag. And Markets to "study the problem of deer feeding near highways and develop recommendations to reduce the number of automobile accidents caused by collisions with deer".

- *Chuck Dente, Ed Kautz and Mike Mathews, New York Deer Team*

## NOVA SCOTIA

Concern regarding a low number of deer resulted in the implementation of a "buck law" hunting regulation throughout the province beginning in the fall of 1993. Since the fall of 1993 hunters have been restricted to taking only deer having antlers with a minimum length of 3 inches. In spite of a reduction in the harvest by focusing hunting on only antlered males, there has been no indication of a herd size increase until the fall '95 hunting season when kill figures rose sharply and the spring of 1996 Pellet Group Index that showed a slight herd size increase.

Table 1 demonstrates harvest numbers, license sales and other hunting related data for the period 1990 through 1996. As well, herd size estimates and information pertaining to age structure, condition, reproduction, etc. are presented.

The impact of hunting bucks only, on the number of breeding age males remaining in the population, has been investigated by looking at the sex and age of all 'found dead deer' (mostly road and coyote kills) after hunting season through spring. The effect has been a noticeable change from between 25 to 30% adult males during years of hunting all

**Table 1. STATUS HARVEST & CONDITION OF DEER IN NOVA SCOTIA 1991 - 1996**

	1991	1992	1993*	1994*	1995*	1996*
Spring Herd Size Estimate (PGL)	54,825	57,332	51,867	44,841	44,248	45,835
Total Registered Harvest	18,463	15,955	4,879	5,264	7,038	N/A
Total Antlered Deer Harvested	8,650	7,280	4,879	5,264	7,038	N/A
Total License Sales	81,461	77,477	57,372	51,520	52,257	N/A
Hunter Success (%)	22.7	20.6	8.5	10.2	13.5	N/A
Bow Stamps Issued	2,199	2,395	1,990	1,804	1,970	N/A
Harvest By Bow	146	178	60	64	109	N/A
Non-resident Licenses	1,199	1,027	739	541	521	N/A
Non-resident Harvest	353	370	83	71	72	N/A
Wildlife Investigation Reports	1,917	2,034	1,818	1,984	2,041	N/A
- Deaths by Auto	1,237	1,284	1,047	1,162	1,375	N/A
- Deaths by Coyotes	90	105	125	95	17	N/A
- Nuisance Complaints	84	123	85	54	48	N/A
Fetuses per 100 Does (Spring)	148	135	125	121	120	121
% Herd Mature Bucks - Post Hunt	28.0	26.3	23.5	15.5	17.5	17.33
% Herd Starving (Spring) **	22.7	43.7	20.7	25.3	20.1	19.0

PGL (Pellet Group Index)

\* Harvest restricted to antlered deer only.

\*\* Determined by assessing bone marrow fat content of found dead deer during the period 1 February through 15 May. When 25% or less bone marrow fat remaining, the deer is considered to be in an advanced state of starvation.

segments of the herd, down to 23.5% after one year and 15.5% after two years of buck law. However, during the winter/spring of 95/96, this number increased to 17.3%.

Reproduction has also been monitored by inspecting 'found dead' does for number of fetuses carried. Concern that the reduced number of breeding age males in the population may have affected reproduction is unsubstantiated as a rate of about 1.2 fetuses per doe (all age classes) appears to have been maintained.

In exchange for an embroidered Deer Management Crest, hunters have been asked to turn in the lower jaw of their deer for the purpose of determining the animal's age. Seventeen percent of jaws (of reported harvest - fall 1995) were acquired in this manner. Table 2 demonstrates the age structure of hunter killed deer during the first three years of buck only hunting.

**Table 2. AGE DISTRIBUTION OF HARVESTED DEER IN NOVA SCOTIA (1993, 1994 & 1995) - by percentage**

AGE	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8+	# OF JAWS
1993	38.7	24.5	16.6	9.1	7.1	2.5	1.0	0.4	967
1994	42.3	24.6	18.6	8.1	3.5	1.5	1.0	0.5	1040
1995	50.4	21.6	14.9	6.9	3.5	1.9	0.3	0.5	1352

In the fall of 1994 a new initiative began to gather more information on herd condition by collecting data on antler development. Successful hunters were asked to use a tear off paper measure tape across the bottom of their license, to measure antler circumference. Hunters were asked to submit this measurement together with the jaw of their deer.

Average antler beam diameter of yearling bucks has shown a slight increase from 17.4mm in fall 1994 to 18.6mm in the fall of 1995. Although there is little information available on expected yearling antler development in Nova Scotia, literature on the subject from Maine and New York States suggest that our 1994 figure would indicate our herd and the general condition of its range was near the top end of "Fair". Our 1995 figure of 18.6mm would be categorized as "Good" herd and range condition in those areas.

Antlerless deer hunting permits will likely be available on a limited entry basis, in the fall of 1997. The process of establishing deer management zones and the administrative process of allocating these permits by zone is currently being addressed.

*- Tony Nette, Nova Scotia Deer Project Leader*

## **PENNSYLVANIA**

The 1995 harvest was 430,583, consisting of 182,235 antlered deer and 248,348 antlerless deer. This compared with a harvest of 395,081 (157,030 antlered and 238,051 antlerless) in 1994. Both antlered and antlerless harvests were record highs for Pennsylvania. Reported harvest figures are calculated from mandatory report cards and compliance rates (comparison of deer examined at processing plants and report cards received). Harvests by season were:

Season	Antlered	Antlerless	Total
Archery	25,070	29,552	54,622
Muzzleloader	303	9,698	10,001
Rifle	156,862	209,098	365,960
Total	182,235	248,348	430,583



**1996 POPULATION PROJECTION**

The projected preseason population of approximately 1,202,000 is slightly more than the 1,150,000 estimated for preseason 1995. The breakdown of the projected population is:

<u>Age and Sex</u>	<u>Number</u>
Adult Males	204,000
Adult Females	474,000
Fawns - Males	272,000
Fawns - Females	252,000
Total	1,202,000

**1996 SEASON FORECAST**

The antlered kill is expected to be between 146,500 and 179,100. The allocation of 724,350 antlerless licenses, compared with 656,000 in 1995, is expected to result in an antlerless harvest of between 207,400 and 253,400. This allocation will lower the over-wintering deer density in 20 management units, hold it at its current level in 25 units, and allow the density to increase in 22 units. Our deer herd is still about 40% above the habitat-based goal and this allocation is too small to move the population toward the state-wide goal of 21 deer per forested square mile.

**NEW REGULATIONS / MANAGEMENT CHANGES**

We reported last year that we were exploring the possibility of replacing our use of counties as deer management units. With input from stakeholders, we proposed a system of 18 management units based primarily on public/private land ownership, amount of forested land, human population density, and deer population age structure. We received approval from the Commission in January to proceed with a series of actions that are necessary before a new management unit system can be established. This fall, we will begin to collect the five years of data needed to estimate deer populations and calculate antlerless license allocations for the new units. Concurrently, forest inventory data for setting deer density goals will be reanalyzed, stakeholder groups will be established to participate in setting deer population goals in each unit, and we will explore alternatives to our present county-based system of issuing antlerless licenses.

Since 1992, the deer density goal for Special Regulation Area counties (Allegheny, which includes Pittsburgh, and Philadelphia and the counties that border it, Bucks, Chester, Delaware, and Montgomery), has been set at 5 deer per square mile of forested land. In an attempt to reach that goal, we issued unlimited antlerless licenses in those counties for the first time last year. Hunters bought 119,603 antlerless licenses and harvested 19,509 deer as compared to an allocation of 74,635 licenses and a harvest of 14,599 deer the previous year. As a result, deer densities, although still above goal, were reduced in all Special Regulations counties. We are again issuing unlimited antlerless licenses in these areas this fall.

We initiated an Agricultural Deer Control Permit program this spring. Under this program, landowners who have been enrolled in our Deer Damage Areas program for the past two years and are still experiencing problems with deer during the growing season can obtain permits (one per 10 acres of cultivated land) that they can issue to licensed hunters. Each permit allows the harvest of one antlerless deer between 1 February and 30 September (no hunting from 16 May to 30 June for vegetable farming and 16 May to 31 July for all other agriculture). We are monitoring this program and will evaluate it at the end of the year.

The National Park Service, after many years of preparation, initiated a ground-breaking deer management program at Gettysburg National Military Park. Using their own personnel, from 2 October 1995 through 15 March 1996 they shot 503 deer from an estimated herd of 1,148 on the 11 square mile Park. The cost was about \$88 per deer, about half the estimated cost. The over 31,000 pounds of venison was donated to food banks. The Park Service intends to reduce the deer population another 50 percent this year by removing another 250-300 deer (primarily antlerless), bringing the deer density to 25 deer per square mile of forested land.

- George Kelly / Bret Wallingford, Pennsylvania Deer Project Leaders

## **QUEBEC**

In Québec, the 1995 deer harvest reached 35,880 animals, a new record for a third year in a row. On the continent, the rise was spectacular : the harvest of 27,679 deer (Table 1) represents a jump of 60.9 % over 1994. This increase cannot be attributed to a rise in the number of hunting licences issued, since a total of 115,113 licences were sold, a rise of only 3.5 % compared to the previous year. The harvest represents an average success of 24.0 %. On Anticosti Island, however, the harvest (8,204) was 6.2% lower than that of 1994, despite a rise (7.3%) in the number of licences issued (5,160). The average harvest was 1.6 deer/hunter.

On the continent, the bucks harvest with firearms numbered 20,176 deer, an increase of 68%. The number of permits issued for antlerless deer was up from 3,085 to 4,075 (+32.1%). The harvest of antlerless deer with firearms went from 1,592 to 2,400 deer, an increase of 50.7% for an average success of 58.9%. All zones recorded an increase. The increase was less marked (27 and 28 %) in zones where bowhunting was the main or only method of hunting authorized. In other zones, the rise was between 50 and 80%; it even doubled in one zone. For bowhunting, the harvest rose by 41%.

Very favourable hunting conditions prevailed over the 1995 hunting season (good weather, snow-covered ground) which can partly explain this increase in the harvest. However, we believe it is particularly due to an increase of deer populations, induced by relatively clement winters of recent years.

### **1995-1996 WINTER**

The 1995-1996 winter was be relatively mild in all zones. Snowfall were abundant and came early in the season. However, after Christmas, snow precipitations were much less significant and the mild weather leaved conditions which were favourable to deer : thin snow layer or hard, crusty covering bearing the weight of the animals.

## **MANAGEMENT AND REGULATIONS**

Further to the consultations regarding deer management, a hunting season of limited-length, intended specifically for black-powered firearms, has been introduced in zones 4, 5 and 6, after the regular firearm seasons. Only antlerless deer will be authorized during such season. This condition replaces the special licences granted for antlerless deer in these zones.

In view of what has been observed in that zone and the previous mild winter, deer hunting will be reopened in zone 2.

## **RESEARCH**

Following the deer decline in Bas-Saint-Laurent and Gaspésie regions some years ago many research projects were initiated on deer-habitat relationships or deer-coyote ecology. Most of these research projects were undertaken 1 or 2 years ago with the participation of universities and graduate students, and will soon be completed.

### **RESEARCH ON DEER HABITAT (primarily during heavy snow cover conditions)**

- Forest characteristics of habitat selected by deer during winter in eastern Québec. Dumont, A., J. P. Ouellet, H. Huot et M. Crête. Ph.D. (in prep.).
- Utilization by deer of forage resulting from a commercial wood harvest in a deer wintering yard of eastern Québec. St. Louis, A., J.-P. Ouellet, M. Crête, J. Huot et J. Maltais (in prep.).
- Winter strategy of deer foraging in eastern Québec. Dumont, A., J.-P. Ouellet, J. Huot et M. Crête (in prep.).
- Summer habitat quality of white-tailed deer in eastern Québec. L. Lesage. Thesis (Ph. D.)
- Sharing of food by deer using artificial feeding sites in winter. Grenier, D., C. Barette et M. Crête (in prep.).
- Habituation of naïve deer, to use pelleted feeds as emergency food during winter. Maltais, J., J. Huot, Crête, M. et J.-P. Ouellet (in prep.).
- Production cost of emergency winter food for deer resulting for shrubs cutting. Maltais, J., J.-P. Ouellet, M. Crête et J. Huot (in prep.).

- Preference of wild deer for different energy and protein contents of pelleted feeds. Berteaux, D., J. Huot, M. Crête, J.-P. Ouellet (in prep.).

### COYOTE STUDIES

- Population dynamics of coyotes colonizing the boreal forest of southeastern Québec. 1996. Crête, M. et R. Lemieux. J. Wildl. Res. 1(1): 99-105.
- Seasonal variation in body mass and composition of eastern coyote. 1995. Poulle, M. L., M. Crête et J. Huot. Can. J. Zool. 73 : 1625-1633.
- Food habits and population density of coyote in the central part of Gaspé peninsula. Samson, C. et M. Crête. Can. Field-Nat (in press).
- Summer foraging behaviour of eastern coyotes : evidence of a source and sink dynamic (submitted). Tremblay, J.-P., M. Crête et J. Huot.

\* Except for published papers, we refer to the subject of the research.

Table 1. 1995 DEER HARVEST IN QUÉBEC

	1992	1993	1994	1995
Anticosti	7 670	8 483	8 654	8 204
(either sex)				
Other zones				
Bow (either sex)	2 337	2 959	3 600	5 100
Firearms				
bucks	10 032	12 264	12 009	20 176
antlerless	2 362	1 397	1 592	2 400
TOTAL	22 401	25 103	25 856	35 880

- Gilles Lamontagne, Quebec Deer Project Leader

### RHODE ISLAND

Total Harvest-	All Sporting Arms- 1769
Archery-Harvest-	415
Mainland-	146 (75 males, 71 females, 2 unknown)
	3,558 permits issued
	Season dates-October 1-January 31
	Limit- 1 deer, either sex-additional permit available after checking first deer
Prudence Is.-	250 (123 males, 127 females)
	868 permits issued

Season dates-October 30-January 14

Prudence regulations more restrictive, proficiency required

Limit-1 deer, either sex -additional permit available after checking first deer

Block Is.- 19 (10 males, 9 females)

31 permits issued

Season dates-selected days between Nov. 2-Dec. 18

Limit-no limit-additional permit available after checking first deer

**Muzzle loader-Harvest-** 743

423 males, 313 females, 7 unk

5,680 permits issued

Season dates- November 6-19, either sex; statewide

December 16-24, either sex; private land

November 20-26, antlerless; private land

Limit- 1 deer, either sex - additional permit available after checking first deer, private land only

**Shotgun Harvest-** 603

340 males, 263 females

7,130 permits issued (6117 shotgun, 1013 second tag)

Season dates- December 2-10

Limit- 2 deer, either sex

**Special season for paraplegic & double amputees** Harvest 8 (8 males, 0 females)

**Current Population Estimate-** 8500 Mainland, 4-600 Prud. Is., 700 Block Is.

**1996-97 Season Projection-** Continued record harvests

#### **Regulations or Management Changes**

- Five day extension of shotgun season on private land
- Bonus/Antlerless permit for muzzle loader on private land
- Proposed 42 day archery/41 day shotgun season on Block Island
- Continue prescribed burn plan for Prudence Island

**- Lori Suprock, Rhode Island Deer Project Leader**

**VERMONT**

The 1995 deer seasons were among the best in the last 20 years. A total of 18,116 deer was taken during the 3 Vermont deer seasons. This includes new state records for the archery and muzzleloader seasons. Much of the success can be attributed to the excellent hunting conditions experienced throughout each season. Abundant fall foods in 1994 and the extremely mild winter of 1994-95 contributed significantly to the size of the deer population and the subsequently excellent hunting too. A total of 376 hunters took their annual bag limit of 3 deer, 1961 hunters took 2 deer, and 13,066 took 1. The deer harvest has been summarized by wildlife management unit in table 1.

**Table 1. 1995 Legal deer harvest by Wildlife Management Unit (WMU).**

<b>WMU</b>	<b>Bow</b>	<b>Rifle</b>	<b>Bucks/Sq.ML</b>	<b>Muzzleloader</b>	<b>Total</b>
A	70	157	2.31	65	292
B	416	921	1.49	292	1629
C	124	470	1.32	116	710
D1	223	586	1.31	200	1009
D2	99	530	0.90	36	665
E	17	274	0.47	20	311
F1	60	186	0.53	23	269
F2	116	307	1.18	45	468
G	179	350	0.90	23	552
H1	408	739	1.85	334	1481
H2	165	374	1.61	24	563
I	40	302	0.75	18	360
J1	483	877	1.75	164	1524
J2	549	1015	2.17	320	1884
K1	99	276	2.56	61	436
K2	467	867	2.71	259	1593
L	86	207	0.63	23	316
M1	168	287	1.25	14	469
M2	298	376	1.82	20	694
N	380	782	2.73	22	1184
O1	62	125	0.68	4	191
O2	281	372	1.41	19	672
P	36	257	0.66	13	306
Q	212	299	1.16	19	530
Unk.	8	0	0.00	0	8
<b>Total</b>	<b>5046</b>	<b>10,936</b>	<b>1.39</b>	<b>2134</b>	<b>18116</b>



License sales for 1995 may have decreased slightly (7%) from 1994. A preliminary total of 95,642 hunting, combination, and junior licenses were sold. Residents purchased 82,110 licenses and nonresidents purchased 13,532.

**ARCHERY SEASON: OCTOBER 7-29 AND DECEMBER 2-10**

The archery season harvest of 5046 represents a new state record. The success rate for hunters taking 1 deer was 14.7%. A total of 510 bow hunters took 2 deer. Archery hunters took 3 deer during the December season. The first weekend saw the greatest kill of any 2 day period with 579 (Saturday) and 517 (Sunday) deer being taken.

Adult males made up 32% of the kill and adult females made up 46%. Male and female fawns were 12% and 11% of the harvest, respectively. Age and sex ratios of the harvest patterned closely after previous archery seasons. It appears from the data that age and sex selection of the second deer is not different from that of the first.

Vermont hunters took 4137 deer while residents of the other New England states, New York, and Quebec took 895 deer. The remaining 14 deer were taken by hunters from California to Florida to Oklahoma.

**RIFLE SEASON: NOVEMBER 11-28**

In spite of some extremely variable weather on the opening weekend the hunting season was characterized by continuous fresh snow and cool temperatures. With fall foods being in short supply deer focused their feeding time in the fields and forest edges. Many hunters utilized this feeding pattern to take 10,936 bucks in November. Hunter success was 11.4%. This harvest is 22% greater than the previous year's harvest of 8901 but, more importantly, it represents the continuing trend of harvest (population) increase begun in the late 80's. Buck harvests were at or above the harvest targets set in the 1990-95 deer management plan for 16 of the 24 WMU's.

Vermont hunters took 9451 deer while residents of the other New England states, New York, and Quebec took 1363 deer. The remaining 122 deer were taken by hunters from California to Florida to Hawaii and points in between. Regular license holders took 8640 deer, permanent license holders took 221, and landowners took 40. Forty-five percent of the harvest occurred on the opening weekend with smaller peaks occurring on the second and third weekends too.

Biologists and technicians weighed, measured antler development, and estimated the age of 1174 deer on the opening weekend. This sample represents 11% of the total harvest. Yearling bucks (1.5 years of age) made up 70% of the sample. This large proportion may be explained by a high survival rate experienced during the winter of 1994-95. State averages of yearling buck weight, antler beam diameter, and percent spike horns was 113.0 lbs., 16.9 mm, and 53%, respectively (Table 2).

**MUZZLELOADER SEASON: DECEMBER 3-11**

The muzzleloader harvest of 687 bucks established a new state record. As was the case for the archery and rifle seasons, hunting conditions during this season were nearly perfect every day. The availability of antlerless permits, and the increased deer population also contributed to the new record. The success rate for muzzleloader hunters, taking an adult buck, increased from 2% to almost 5%. Of the nearly 14,000 muzzleloader license holders, 16 took 2 adult bucks.

A limited antlerless hunt was conducted in 11 of the 24 management units concurrently with the muzzleloader season. Permits were issued to 5801 people from the 13,830 applications received at the Waterbury office. The limited amount of time available to process the applications made it impossible to tabulate the number of multiple applications, but it is estimated to be about 500 individuals. A small number of duplicate applications (48) were inadvertently mailed. Most of these were returned by the recipients and were subsequently reallocated. A total of 367 applications was not processed due to ineligibility.

A total of 1447 antlerless deer was taken in the 11 WMU's (Table 3).

The success rate for antlerless deer hunters exceeded our expectation in nearly all units. This is likely due to the larger number of deer and the excellent hunting conditions described previously. However, given the larger than expected harvests during the archery and rifle seasons, increases in antlerless deer harvests were proportional to the overall size of the harvest. Most importantly, adult doe to buck harvest ratios were nearly identical with the ratio goals outlined in the harvest proposal (Table 4).

**Table 2.** Sample size, mean dressed weight, mean antler beam diameter, and percent spike horns of 1.5 year old bucks, sampled by WMU during Vermont's 1995 November deer season.

<b>WMU</b>	<b>Sample size (n)</b>	<b>Mean weight</b>	<b>Mean antler beam diameter</b>	<b>Percent spikes</b>
A	33	118.1	17.8	42
B	106	120.8	17.4	40
C	32	121.7	17.6	56
D1	38	118.7	17.7	50
D2	38	119.8	17.0	37
E	12	122.2	16.9	75
F1	14	117.0	17.3	43
F2	32	116.1	16.1	56
G	20	116.7	17.2	50
H1	40	111.1	16.3	65
H2	19	114.7	16.3	53
I	14	111.7	15.6	43
J1	20	102.2	16.3	65
J2	72	104.6	15.9	71
K1	38	110.8	16.3	55
K2	49	109.4	16.7	61
L	21	112.6	17.4	48
M1	14	109.1	17.4	43
M2	26	103.6	16.6	61
N	62	111.0	17.7	56
O1	1	104.0	15.0	100
O2	33	107.4	16.5	61
P	8	106.6	19.1	38
Q	28	104.4	17.3	50
<b>State</b>	<b>783</b>	<b>113.0</b>	<b>16.9</b>	<b>53</b>

**Table 3.** Age and sex distribution of Vermont's 1995 Vermont muzzleloader season by wildlife management unit (WMU).

WMU	Adults		Fawns	
	Bucks	Females	Males	Females
A	13	35	6	10
B	53	178	25	36
C	34	62	7	7
D1	47	126	17	23
D2	22	0	0	0
E	20	0	0	0
F1	7	14	1	0
F2	21	21	2	0
G	14	0	0	0
H1	75	219	22	30
H2	21	0	0	0
I	18	0	0	0
J1	54	93	9	5
J2	83	208	13	21
K1	13	43	4	1
K2	60	169	23	17
L	22	0	0	0
M1	14	0	0	0
M2	19	0	0	0
N	22	0	0	0
O1	4	0	0	0
O2	19	0	0	0
P	13	0	0	0
Q	19	0	0	0
<b>Total</b>	<b>687</b>	<b>1168</b>	<b>129</b>	<b>150</b>

**DEER MANAGEMENT PLANNING**

The Department is continuing to craft the 1997-2006 deer management plan. Key pieces of public information were collected by the independent survey company of Responsive Management Inc. (Mark Duda, et al) in January and February of 1996. During the random telephone survey of 1000 Vermont residents, respondents were asked questions pertaining to habitat protection, frequency of damage by nuisance wildlife, and satisfaction with recent deer hunting

**Table 4.** 1995 Vermont muzzleloader season antlerless permit distribution and harvest rates by wildlife management unit (WMU).

<b>WMU</b>	<b>Permits Issued</b>	<b>Antlerless deer taken</b>	<b>Success Rate</b>	<b>Buck:Doe1 Ratio*</b>	<b>Target Ratio*</b>
A	220	52	23.6	0.31	0.40
B	1063	239	22.4	0.31	0.30
C	281	82	29.2	0.19	0.20
D1	866	167	19.2	0.30	0.30
D2	0	0	-	0.10	-
E	0	0	-	0.03	-
F1	133	16	12.0	0.21	0.20
F2	111	24	21.6	0.22	0.20
G	0	0	-	0.22	-
H1	1148	271	23.6	0.43	0.40
H2	0	0	-	0.18	-
I	0	0	-	0.04	-
J1	465	110	23.6	0.27	0.30
J2	716	238	33.2	0.38	0.30
K1	119	48	40.3	0.32	0.30
K2	679	200	29.4	0.35	0.30
L	0	0	-	0.17	-
M1	0	0	-	0.27	-
M2	0	0	-	0.29	-
N	0	0	-	0.20	-
O1	0	0	-	0.17	-
O2	0	0	-	0.29	-
P	0	0	-	0.07	-
Q	0	0	-	0.28	-
<b>Total</b>	<b>5801</b>	<b>1447</b>	<b>24.9</b>	<b>-</b>	<b>-</b>

\*All seasons combined 1. Adult males and females

experiences. Additional questions addressed season length and bag limits. All of the questions were used as a statistically reliable measure of the general and hunting publics's opinion prior to public input sessions. A series of open houses will be conducted in December to gather more information from special interests and other interested parties. Management strategies that address habitat conservation, deer population targets, and public satisfaction will be the principle components of the final plan.

- John Buck, Vermont Deer Project Leader

**VIRGINIA**

The deer harvest during the 1995-96 hunting season was 218,476 (106,147 antlered males, 25,111 male fawns, 86,101 females (39.6%), and 1,117 deer of unknown sex), see Table 1. The archery, muzzleloading, and general firearms deer harvests were 16,199(7.4%), 39,809(18.2%), and 161,449(73.9%), respectively. Of the 218,476 deer harvest in Virginia, 194,579 or 89.1% were harvested on private land(s). Private land comprises more than 23.4 million acres or approximately 92% of the land area in Virginia. The overall statewide harvest rate on private land was 120 acres per deer harvested or 5.3 deer per square mile. Condition data (e.g., weights, ages, antler development, lactation rates, etc.) were collected from 16,528 (8.5%) deer harvested on private land during the 1995-96 hunting season. Conversely, 20,385 deer or 9.3% were harvested on public land(s). Public land(s) encompass approximately 2 million acres or 8% of the land area in Virginia. The overall statewide harvest rate on public land was 98 acres per deer harvested or 6.5 deer per square mile. Condition data (e.g., weights, ages, antler development, lactation rates, etc.) were collected from 4,263 (21.0%) deer harvested on public land during the 1995-96 hunting season.

The 1995 total represented a 4.3% increase over the 209,373 checked in 1994. Increases in deer harvest levels were, for the most part, statewide. Only 1 physiographic region, the Southern Mountains, exhibited a decline of approximately 4% in deer harvests between 1994 and 1995. All other regions, including Tidewater, Northern and Southern Piedmont, and Northern Mountain exhibited harvest increases. The largest increase was in the Northern Mountain region which increased 9.3%. The most significant change between the 1994 and 1995 deer harvests was a significant increase in antlered buck harvests. Antlered buck harvests increased 10,511 or approximately 11% between 1994 and 1995. A majority of this increase can be attributed to muzzleloaders. Muzzleloading harvests continued to demonstrate significant annual increases, increasing 28% from 31,090 in 1994 to 39,809 in 1995. Increases in muzzleloading harvests were probably due to a combination of continued increases in muzzleloading hunter numbers, up 11% from approximately 79,000 in 1994 to 88,000 in 1995, and a regulation change allowing scopes during the special muzzleloading season(s).

Private land deer management programs, the Deer Management Assistance Program (DMAP) and the Damage Control Assistance Program (DCAP), initiated during the 1988-89 season were continued. During the 1995-96 hunting season there were 394 DMAP cooperators encompassing more than 1 million acres in 78 counties. These DMAP cooperators were issued a total of 15,467 antlerless tags and reported a harvest of 15,257 deer.

**Table 1. Virginia deer harvest, 1986-1995.**

<u>Year</u>	<u>Male<sup>1</sup></u>	<u>Female(%)</u>	<u>Total<sup>2</sup></u>	<u>Archery</u>	<u>Muzzleloader</u>
1986	80,889	40,871(33.6)	121,801	7,972	1,082
1987	81,935	37,374(31.3)	119,309	7,408	2,220
1988	76,871	37,691(32.9)	114,562	8,991	
1989	88,940	46,154(34.2)	135,094	10,179	3,040
1990	103,439	55,376(34.5)	160,411	13,487	10,116
1991	108,284	70,821(39.5)	179,344	15,687	9,875
1992	120,691	79,170(39.6)	200,446	17,646	12,115
1993	116,500	82,720(41.5)	201,122	15,900	25,995
1994	120,360	87,720(42.1)	209,373	18,700	31,090
1995	131,258	86,101(39.6)	218,476	16,199	39,809

<sup>1</sup> Includes male fawns and antlered bucks.

<sup>2</sup> Includes deer of unknown sex.



**REGULATION CHANGES FOR 1996-97**

At the state level, deer harvest regulations are evaluated and amended every other year on odd years (1994, 1995, etc.). The Wildlife Division has initiated the development of a statewide Deer Management Plan. Department staff and other vested stakeholders in Virginia's white-tailed deer resource are involved. A statewide Deer Management Plan committee of 19 persons, including Department Wildlife and Law Enforcement personnel, representatives of the Virginia Farm Bureau Federation, the Virginia Deer Hunters Association, the Virginia Bow Hunters Association, the Virginia Park and Recreation Society, the Virginia Federation of Humane Societies, Fairfax County Animal Control, the Albemarle County Supervisors, the Smithsonian's Conservation and Research Center, Virginia Polytechnic Institute and State University, the U.S. Forest Service, and Chesapeake Forest Products has been assembled. Program goals, history, and supply and demand have been written up. Regional committees were held around the state to evaluate draft program goals and to receive public input relative to population goals and management objectives. Current plans call for a draft plan to be submitted to the Board for approval around the end of the calendar year. If approved by the Board in draft form, the plan will be submitted for public review prior to final adoption. If adopted this plan will serve as the blueprint for our deer management programs for the next six years.

*- Matt Knox, Virginia Deer Project Leader*

**WEST VIRGINIA**

The total buck harvest for 1995 was 100,034, a 34% increase from the 74,628 checked in 1994. Resident hunters harvested 82,668 while nonresidents claimed 16,668. There were 678 bucks checked with no record of hunter residence status.

Bowhunters harvested 9% more deer than in 1994. A total of 28,072 deer were killed by archers during the October 14 to December 30, 1995 season. Sex ratio of the bow kill was 14,804 males to 13,196 females.

The 3-day antlerless season in 40 counties, or portions thereof, opened December 7. Overall, the 1995 antlerless harvest of 59,676 was a 65% increase from the 1994 total of 36,229. Sex ratio of the antlerless harvest was 8,794 males to 50,645 females. There were 237 antlerless deer checked with no record of sex on the game check tag.

The 1995 muzzleloader season was the fifth year hunters could take advantage of a 6-day hunter's choice muzzleloader's season in 40 counties, or portions thereof, open to Class N hunting. Muzzleloader hunters harvested 13,843 deer, a 25% increase from the 1994 harvest of 11,038. Sex ratio of the muzzleloader kill was 3,797 males to 9,987 females. There were 59 deer of unreported sex.

In 1995, hunters harvested a total of 201,625 deer in the combined deer seasons. This was a 37% increase from the 1994 harvest of 147,604, and was the second largest total deer harvest on record for West Virginia. The 1995 total deer harvest represents 1 deer killed for every 73 acres of deer habitat in the state.

Reported nonseasonal mortalities increased 6% from 11,829 in 1994 to 12,555 in 1995. Leading causes were deer-vehicle collisions (9,186) and deer killed on crop damage permits (2,863).

**REGULATION CHANGES FOR 1997-97**

1. The 2-buck limit in effect in 1995 has been rescinded.
2. Thirty-four counties will have a 3-day antlerless season and 12 counties will have a 6-day antlerless season.

*- Jack I. Cromer, West Virginia Deer Project Leader*

## PRESENTATIONS / ABSTRACTS

### DEVELOPMENTS IN NEW BRUNSWICK'S DEER MANAGEMENT PROGRAM

Jeff Dempsey - Fish & Wildlife Branch, Dept. of Natural Resources & Energy, P.O. Box 6000, Fredericton, New Brunswick, Canada E3B 5H1; Tel: (506) 453-2440

[ NO ABSTRACT AVAILABLE ]

### SURVIVAL OF WHITE-TAILED DEER AND AERIAL POPULATION ESTIMATES IN NEW BRUNSWICK

Dwayne Sabine - University of New Brunswick Cooperative Fish & Wildlife Research Unit, Faculty of Forestry and Environmental Management, P.O. Box 44555, Fredericton, NB Canada E3B 6C2; Tel: (506) 453-4501

[ NO ABSTRACT AVAILABLE ]

### THE FUNDY MODEL FOREST

Peter Ethbridge - General Manager, Fundy Model Forest, RR#4, Sussex, New Brunswick Canada E0E 1P0; Tel: (506) 432-2806

[ NO ABSTRACT AVAILABLE ]

### DEER HABITAT MANAGEMENT IN NEW BRUNSWICK

Stewart Lusk and Scott Makepeace - Fish & Wildlife Branch, Dept. of Natural Resources & Energy, P.O. Box 6000, Fredericton, New Brunswick, Canada E3B 5H1; Tel: (506) 453-2440

[ NO ABSTRACT AVAILABLE ]

### WINTER FEEDING OF DEER

- General group discussion of the subject with the objective of developing a position for the Northeast Deer Technical Committee

Gerald Lavigne - (discussion leader); Wildlife Resource Assessment Section, 650 State St., Bangor, Maine 04401-5654; Tel: (207) 941-4450

**Background:** During the summer of 1996, Gerry Lavigne was asked by the NEDTC Chairman (Steve Weber) to prepare a draft position paper on "Supplemental Feeding of Deer in the Northeast". Public interest in winter feeding of deer seems to be growing annually. A recent survey among NEDTC representatives revealed that most eastern states and provinces actively discourage supplemental feeding by agencies and private citizens. This frequently puts deer managers on the ugly side of public opinion. This initiative is a good opportunity to inform those who insist on feeding about the pitfalls, as well as the related techniques which can minimize harm to deer and their habitat. This topic is ripe for a video and/or a small publication on the subject. There are also a number of research questions which remain unanswered after 50 years of butting heads with the public on winter feeding topics. Below are the compiled examples of stat-level policy statements which may offer a springboard for discussion and possibly

development into a regional-scale supplemental feeding policy or publication.

### Winter Deer Feeding Questions:

#### 1. To what extent are deer currently being supplementally fed in your state/province during the winter? How do you know?

- West Virginia - Supplemental feeding of deer is being done by isolated individual landowners secondary to year around feeding stations for wild turkeys, and direct winter feeding. No formal survey has been conducted to quantify this activity, however wild turkey feeding stations have been recorded during a portion of our 5-year wild turkey population dynamics study. Direct deer feeding has been noted from conversations with landowners, especially during investigations of deer mortality in conjunction with locally overabundant deer populations.
- Maine - Unquantified.
- Nova Scotia - Only by a few individuals in their backyards. Inquiries on "how to" by the public.
- Quebec - Regional staff annually report, for many years, that citizens or citizens groups do feed deer. This seems still to be a marginal phenomena on the whole. Nevertheless, this practice is concentrated in some areas, often associated with the presence of winter sport activities or tourists (ie., north of Montreal).
- New Brunswick - Some supplementary feeding occurring by individuals around the Province. We know this because we often get calls from individuals for advice regarding supplemental feeding.
- Rhode Island - Minor feeding on Prudence Island; open discussions with landowners.
- New York - Supplemental feeding occurs predominately in the Adirondack and Catskill regions of New York. It is largely the work of clubs but some local communities and individuals also get involved. No attempt has ever been made to determine the number of sites or amount of food distributed.
- Massachusetts - Deer are being fed during the winter in isolated cases throughout western, central, and northeastern Massachusetts. I do not believe that the very small amount of feeding could be construed as "supplementing" any number of deer or deer population. Rather, deer feeding in winter by humans in Massachusetts occurs sporadically such that survival of a few individual deer may be increased, but the efforts are insignificant in terms of deer herds or regional populations.
- Connecticut - Difficult to quantify. In general, phone inquiries regarding winter feeding of deer increase during hard winters, but no records are maintained.
- Maryland - Feeding occurs mostly in western Maryland as winters are most severe. Sportsmen feed deer (mostly on sportsmen's club land) to maintain a large herd that the natural vegetation cannot support.
- New Hampshire - Between 50 and 75 percent of the deer in our most northerly WMU's (A, B, C1, C2) are currently being supplementally fed. In addition, winter feeding is occurring to varying degrees throughout the rest of the state. Yearling reproductive rates in the southeast have steadily risen from 17% four years ago to 75% last year.
- New Jersey - Winter feeding in NJ is generally limited to private individuals on their property or adjacent public property (eg. Watchung Reservation, Union County). The magnitude of their combined efforts is considered negligible. We believe this to be the case based on informal discussions, newspaper articles, field investigations (winter mortality surveys), etc.. It is important to note that this response does not include deer being baited by deer hunters before and during the deer seasons.

#### 2. Has this activity increased or decreased over the last 5 years, and what future trends do you expect? Please supply any quantitative information you have collected on this.

- West Virginia - Although no quantitative information has been collected, the general consensus among district biologist is that deer feeding activity has increased.
- Maine - Probably increased.

Nova Scotia - No change.

Quebec - Increased over the last 5 years and will continue to be more popular.

New Brunswick - No evidence of any increase or decrease over past 5 years. No quantitative info available.

New York - The return of harsh winters in 1992-93 and 1993-94 spurred an increase in feeding activity. Regional staff report feeding as being way up in 1994. Many clubs and individuals again believe they have "saved" the local deer herd, and I expect they'll continue to feed in many cases. We do not have any quantitative information.

Massachusetts - The activity has remained at a very low level for as long as our District people remember. Only very slight increases in feeding has occurred during the last 2 winters due to increased snow depths.

Connecticut - Winter feeding seems to fluctuate annually. Current weather conditions seem to play a key role in how much supplemental feeding will occur in that specific year. However, some people feed deer annually, regardless of current winter conditions.

New Hampshire - Winter feeding has increased steadily over the last 5 years, and I expect it to continue to rise.

New Jersey - Although no quantitative information is available, it is our feeling that winter feeding has increased slightly during the past 5 years because of a severe winter in 1993-94 and due to the continued expansion of the human population into traditional deer range. It is likely this trend will continue.

### 3. What, if any, have been the positive and/or negative effects of this activity?

West Virginia - No evaluation of the negative or positive impacts of deer feeding has been made, however in at least one situation where deer feeding over a long time combined with restricted hunting has resulted in severe habitat degradation. Some urban deer problems have coincided with deer feeding.

Maine - Many unanswered questions.

Nova Scotia - A few deer more viewable in backyards.

Quebec - This activity noticeably increased the interest for deer in some areas, particularly where it was practiced in such a manner to permit tourists to see deer. This attraction makes the event in major newspapers 2-3 times per year. No doubt this is a way to promote a non-consumptive use of deer and develop the interest of non-hunters to this species, which is important when discussions occur on deer habitat protection. We have not documented positive/negative impacts on deer populations, as we had no research or monitoring program. In one occasion we noticed that a wrong choice for the feeding site attracted deer across the road and was the cause of many car/deer accidents.

New Brunswick - Unable to determine the effects, but my opinion is the impact has been neutral or negative; i.e. supplementally fed deer are more prone to predation and/or poor nutritional quality by inappropriate foods.

New York - In 1994 we documented one site where several deer died at a feeding site. A definitive diagnosis was made, but *Clostridium* sp. Were isolated and likely involved. The deer were in good flesh when they died. A positive effect is that many people enjoy feeding and observing deer; it is a form of recreation to them and they derive a sense they are helping the deer through their feeding efforts. This may prompt many who hadn't previously fed deer to continue to do so.

Massachusetts - The positive effect of winter deer feeding in Massachusetts is to make the people doing it feel good about their own efforts. The potential negative effects identified were: (1) increased susceptibility of deer to predators (particularly canids) while the deer are grouped together, (2) incorrect dietary supplementation, and (3) habituation to an area for poaching purposes.

Connecticut - At Bluff Point, severe barkstripping and browsing occurred at all feed sites due to the artificially high concentration of deer in small areas.

Maryland - The feeding has a negative effect on deer because many clubs that feed deer do not allow doe hunting.

In a few areas, it has had an effect on crop damage to adjacent farmland.

New Hampshire - We believe survival of our northern deer herd has increased, and our southern herd has increased its reproductive success. More people are enjoying deer viewing than ever before. The down-side, of course, is people starting to gain "ownership" of the deer, and increased reproductive success in southern areas may complicate management, as populations continue to rise.

New Jersey - Although the potential negative consequences of winter feeding are substantial, the limited amount of winter feeding which occurs in NJ has minimal impact. To a limited extent, winter feeding in and adjacent to deer refuges concentrates animals, exacerbates overbrowsing, is expensive and at times induces mortality.

#### 4. What are the major motivating factors influencing people to feed deer in your jurisdiction?

West Virginia - Major motivating factors influencing people to feed deer appear to be (1) perception that during snowy winters food is unavailable, (2) feeding increases the deer population in the area of interest to the person supplying the feed, (3) feeding attracts deer for viewing, and (4) feeding attracts and maintains deer into an area where hunting does not occur or is limited.

Maine - Animal welfare and attraction as with bird feeding.

Nova Scotia - Feel they are helping the deer cope with winter.

Quebec - There are 3 major motivations to people: (1) interest to attract tourists by local merchants, restaurants, cross-country ski or camp owners, and areas where tourism or winter sports is important for the local economy, (2) interest in saving deer where population is suffering a hard winter, (3) interest in seeing deer as many people enjoy seeing deer just as they enjoy feeding birds to watch them.

New Brunswick - Genuine love of deer for viewing and hunting. During low deer population densities, they consider feeding helpful towards deer survival.

Rhode Island - Poor Deer Syndrome.

New York - A belief they are helping deer survive the winter is the primary motivation. Improving the opportunities to see deer also prompts some feeding.

Massachusetts - Main motivation for feeding deer is self-satisfaction of being a "good Samaritan" through display of concern for deer welfare.

Connecticut - We receive phone calls from both hunter and non-hunters asking about winter deer feeding. The frequency of phone calls noticeably increases during harsh winters. Interestingly, at Bluff Point a young lady who was providing supplemental feed said, "When are you going to cull the deer herd? If you're not going to reduce the deer population, then we are going to feed them because we don't want them to die of starvation". She does not disagree with killing deer, she disagrees with allowing deer to die of starvation.

Maryland - Sportsmen feed deer (mostly on sportsmen's club land) to maintain a large herd that the natural vegetation cannot support.

New Hampshire - Major motivations in the northern part of the state are increased survival for hunting, with viewing being secondary in most cases. The reverse is true in southern areas, with individual variations throughout based on individual feeders.

New Jersey - Viewing deer and supplementing natural food supplies (providing handouts).

#### 5. Do you feel this practice will have (has had) any influence on how you manage your deer herd?

West Virginia - No direct influence on how deer are managed.

Nova Scotia - No

Quebec - No influence up to now. The Department is not involved in deer feeding programs, and its orientation is to use this management tool exceptionally, in a critical situation only. If a very special situation occurs, the Department would look for feeding deer if the food supply in the winter yard is suspected to be inadequate.



In this case, "natural" food would be preferred to commercial food.

New Brunswick - No effect on the way deer are managed.

Rhode Island - No.

New York - No.

Massachusetts - Winter deer feeding has had no significant influence on duties within this agency, nor do we expect that it will.

Connecticut - Winters typically have no significant effect on deer survival, therefore, has little influence on deer management efforts. Interestingly, this past winter was the snowiest winter in Connecticut history. Winter conditions did not result in winter starvation, but based on anecdotal evidence, it did appear to increase deer vulnerability to canid predation.

Maryland - No.

New Hampshire - Yes. We think we have been automatically adjusting for it with our regulations, and will continue to do so. Winter feeding may be playing a major role in the growth and maintenance of our northern herd.

New Jersey - Winter feeding, except by deer hunters, has little effect on our program because the extent of feeding is limited in scope and distribution.

**6. Also, please send along copies of any Department Policy Statement, state or provincial laws, or other official or unofficial protocols you work under in relation to winter feeding of deer.**

Maine - No official policy.

Nova Scotia - None.

Quebec - No special regulation about feeding deer. Department policy is not to encourage winter feeding. A pamphlet for the public explains this position and the disadvantages of the practice--- possible negative effects on deer populations or deer habitat (overcrowding), on deer individuals (if food is inadequate, dominance among deer), rising deer susceptibility to poaching or road kills, the long-lasting and costly (money and time) commitment, etc..

New Brunswick - We don't have any provincial documentation, but we do not encourage feeding as a Department. For those who insist on feeding, we suggest that they provide good quality natural foods as much as possible, start feeding early in winter, and continue feeding regimen until Spring. Our general opinion as a Department is that deer should be capable of surviving under available winter habitat conditions.

New York - Instead of flat out discouraging it, we point out the pitfalls and hope anyone deciding to feed does so in a sensible manner.

Massachusetts - We have no policy statement on winter deer feeding (although we discourage it). We do, however, have regulations prohibiting feeding of deer during the deer hunting seasons (baiting).

Connecticut - There is no law restricting winter feeding of wildlife on state or private lands. However, state statute does prohibit hunting over bait.

Maryland - We have no policy on winter feeding, but we do prohibit baiting or feeding deer on Wildlife Management Areas.

New Hampshire - our unofficial policy has always been opposed to winter feeding. This is still our "policy", but we do supply information on how to do it properly when requested.

New Jersey - Policy statement relative to winter feeding of deer outlines Department's opposition to the practice.



## GIS Analysis of Deer Winter Habitat

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[ NO ABSTRACT AVAILABLE ]

## Modelling Coyote Predation on Deer Populations in the Northeast

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eMail: brpatt@istar.ca

Nearly 2 decades have passed since the first confirmed coyote in Nova Scotia was trapped in 1977. Since that time research conducted throughout the Northeast has shown that coyotes are capable killing prime aged healthy deer; perhaps in sufficient numbers to significantly affect herd growth. This 4 year project was initiated in the fall of 1993 in an attempt quantify coyote predation on white-tailed deer in Nova Scotia. This study is being conducted as part of a larger study which is investigating the effects of winter severity, landscape pattern, and coyote predation on the movements, habitat preferences, and survivorship of white-tailed deer in Nova Scotia. Herein I report progress made through to August 1996.

The study is being conducted in two areas representing the extremes in typical Nova Scotian winter weather. The first is located in Queens County, southwestern Nova Scotia and includes the eastern half of Kejimikujik National Park and approximately 200km<sup>2</sup> of managed land directly to the east of the Park. Winters are generally mild in this area and deer do not exhibit typical yarding behaviour. The second is located on Cape Breton Island and is centred around the 24km<sup>2</sup> Eden deer wintering area which typically contains ~200 deer from January through March. These 2 areas were selected to allow an examination of the effects of winter severity on coyote-deer interactions. Pellet group surveys indicate that both deer (4.9 and 2.6 /km<sup>2</sup>, respectively) and hare (19.8 vs. 6.8 pellets/ plot, respectively) densities are considerably higher in the Cape Breton study area (CB).

The present study has four main objectives:

1. To estimate the number of both fawn and adult deer killed by coyotes in each of 2 study areas representing typical northeastern forested habitats
2. To examine the potential influence of estimated predation rates on deer in Nova Scotia using an existing wildlife population model
3. To identify the primary factors responsible for variations in deer killing rates in the northeast
4. To develop a model which can be used to estimate the number of deer killed by coyotes, using data readily available to most wildlife managers

Coyote predation rates on deer are being estimated using the following 3 methods: 1. Direct observation of killing rates through intensive snow tracking 2. Estimated consumption rates based on coyote scat analysis and modelled energetic requirements (SAMER) 3. Monitoring the cause specific mortality rates of radio collared deer

All coyote packs examined during this study killed deer during winter. Killing rates averaged 8.13 and 3.71 deer/100 days in the Queens County (Qns) and CB study areas respectively. Coyotes examined in this study are killing prime-aged deer which are in good physical condition. This coupled with the relatively low densities of deer relative to K carrying capacity indicates that coyote predation is likely an additive mortality factor. Deer killing rates were inversely related to the relative snowshoe hare density within each territory. Based on the analysis of 1611 scats, white-tailed deer and snowshoe hare are the principle food items of coyotes in Nova Scotia. Deer comprised from 36.5% (CB, 1995-96) to 62.5% (Qns, 1992-94) of the total annual diet of coyotes. The use of deer was consistently lower in the CB study area, probably owing to the high use of snowshoe hare in that area. Based on the SAMER analysis coyotes are currently removing 7.6 and 1.7 % of deer >1 yr. old annually from the Qns and CB study areas respectively. Respective estimates for fawns are 25.2 and 6.0% annually. Between 1992-94 coyotes removed an estimated 11.5 and 27.9 % of adults and fawns respectively from the Qns study area. Estimated deer consumption rates in Qns based on intensive winter snowtracking and the SAMER analysis were nearly identical. However in the CB study area SAMER overestimated consumption rates by 46%. A higher

incidence of scavenging, breaks in the winter tracking data, and incomplete analysis of scat samples collected in the CB study area were sighted as the primary causes of this discrepancy. Winter observations of coyote feeding habits in CB indicate that snowshoe hare comprised a much larger proportion of the coyotes' diet than suggested by the preliminary analysis of winter scat samples. Preliminary data obtained from 93 radio collared deer suggests an annual loss to predation (both coyote and bobcat) of 14%.

Deer population responses to the estimated predation rates were modeled using the software program ANALOGY 1.0. The age and sex structure, and age specific reproductive rates, of deer were obtained from data provided by the NSDNR. The magnitude of mortality factors other than predation were based on the cause specific mortality rates of the radio collared deer. Based on this modelling exercise, coyote predation was identified as the major limiting factor for deer in Qns. Even without antlerless hunting, and assuming relatively mild winters, there is only minor growth (~1% /yr.) predicted for deer in this region. Relatively high densities of deer in the CB study area appear to be preventing coyote predation from playing any more than a minor role in limiting deer population growth. Therefore deer density was identified as being very important in determining the outcome of coyote-deer interactions in the Northeast. At high deer densities winter severity should be considered the most significant limiting factor for deer in Nova Scotia.

Based on the current study and an extensive review of the literature, winter severity, coyote density, snowshoe hare and deer density, and the availability of domestic carrion, were identified as being important factors affecting coyote-deer interactions in the Northeast. A partial correlation analysis will be used to examine the potential influence of the full range of normal values observed for each of the aforementioned factors. Based on the estimated contribution of each factor, a model will be constructed to estimate annual deer losses to predation.

### **Deer Damage Problems and Mitigation Options in New Brunswick**

Shawn Morrison -

New Brunswick Cooperative Fish & Wildlife Research Unit, University of New Brunswick, Faculty of Forestry and Environmental Sciences, P.O. Box 44555, Fredericton, New Brunswick E3B 6C2; Tel: (506) 453-4501

[ NO ABSTRACT AVAILABLE ]

### **Bias in Age Distribution of New York Adult White-tailed Deer**

J. Edward Kautz -

New York State Dept. of Environmental Conservation, Wildlife Resources Center, 108 Game Farm Road, Delmar, NY 12009; Tel: (518) 439-0098

I tested whether sex-specific age ratios in the harvest of adult (= yearling and older) deer represent those in the population. In adult males, yearlings are over-represented in harvest data. In adult females, 2½-year-old and older animals are over-represented. Apparently yearling male deer are more vulnerable to hunters than older males in heavily hunted areas of New York. When antlerless deer are taken on Deer Management Permits, hunters may select older-larger deer. Older females may also be more vulnerable than younger ones because they lead traveling groups. I found no differences in ages assigned by experts and others, so aging errors shouldn't have contributed to the biases observed.

# 1996 NEDTC MEETING AGENDA

## FINAL AGENDA

### 32nd Northeast Deer Technical Committee Meeting

Fundy National Park, New Brunswick

16 - 19 September 1996

#### Monday, 16 September

Travel Day and check-in at Fundy Park Chalets;

**Registration desk open from 3:00pm to 9:00 pm (Seawinds Restaurant);**

Supper (on your own);

*Meet & Greet Icebreaker (7pm):* refreshments compliments of Moosehead Brewery and snacks compliments of NBDNRE (Seawinds Restaurant)

#### Tuesday, 17 September

- |                   |  |
|-------------------|--|
| 7:15 am - 8:30 am | <i>BREAKFAST (Seawinds Restaurant)</i>   |
| 9:00 am           | Welcome and Opening Remarks (Gerry Redmond Co-chairman)<br>- announcements and review agenda |
| 9:15 am           | <b>State / Provincial Reports</b> (10 minutes each)  |
| 10:15 am          | <i>Refreshment Break</i>   |
| 10:45 am          | State / Provincial Reports (continued)   |
| 12:15 pm          | <i>LUNCH (Seawinds Restaurant)</i>   |
| 1:30 pm           | <b>"Developments in New Brunswick's Deer Management Program"</b><br>- Jeff Dempsey, NBDNRE   |

2:30 pm **"Survival of Whitetailed Deer and Aerial Population Estimates in New Brunswick"**  
- Dwayne Sabine, UNB F&W Co-op Unit

2:55 pm **"The Fundy Model Forest"** - Peter Ethbridge, FMF

3:15 pm *Refreshment Break*

3:45 pm **"Deer Habitat Management in New Brunswick"**  
- Stewart Lusk , Scott Makepeace, NBDNRE

4:45 pm **"Winter Feeding of Deer Discussion"** - developing a NEDTC position  
- Steve Webber (NEDTC Chairman)

5:10 pm Announcements and adjourn

6:15 pm *DINNER (Seawinds Restaurant)*

8:30 pm Evening Social - cash bar? (Seawinds Restaurant)

*Slide Presentation on Fundy National Park - Anne Bardou, FNP*

**Wednesday, 18 September**

7:15 am	<i>BREAKFAST (Seawinds Restaurant)</i>
8:45 am	<p><i>Field Trip:</i> JD Irving Woodland Operations in the Fundy Park region</p> <ul style="list-style-type: none"> <li>- hosted by JD Irving Limited</li> <li>- box lunch and transportation provided; bring appropriate footwear and clothes.</li> </ul>
1:00 pm	<p><b>"Intensively Managed Forests in the Black Brook Region of New Brunswick - Implications For Deer Wintering Area Management"</b></p> <ul style="list-style-type: none"> <li>- John Gilbert, JD Irving Ltd.</li> </ul>
1:25 pm	<p><b>"GIS Analysis of Deer Winter Habitat"</b></p> <ul style="list-style-type: none"> <li>- Bevan Lock, Stora Industries NS</li> </ul>



## ATTENDEES - 1996 NEDTC MEETING

Buck, John	Vermont Department of Fish & Wildlife
Cromer, Jack	West Virginia Division of Natural Resources
Currie, Robert	New Brunswick Department of Natural Resources & Energy
Dempsey, Jeff	New Brunswick Department of Natural Resources & Energy
Eagle, Ken	New Brunswick Department of Natural Resources & Energy
Ellingwood, Mark	New Hampshire Department of Fish & Wildlife
Ethbridge, Peter	Fundy Model Forest, Sussex, New Brunswick
Ferrigno, Dan	New Jersey Division of Fish, Game and Wildlife
Gilbert, John	J.D. Irving Limited, Woodlands Division, Saint John, NB
Gregonis, Michael	Connecticut Department of Environment Protection
Gustafson, Kent	New Hampshire Department of Fish & Game
Hotton, Douglas	Maryland Forest, Park & Wildlife Service
Kautz, Ed	New York State Dept. of Environmental Conservation
Kelly, George	Pennsylvania Game Commission
Knox, Matt	Virginia Department of Game & Inland Fisheries
Lanteigne, Cindy	New Brunswick Department of Natural Resources & Energy
Lavigne, Gerry	Maine Department of Inland Fisheries & Wildlife
Lock, Bevan	Stora Forest Industries, Port Hawksbury, Nova Scotia
Lusk, Stewart	New Brunswick Department of Natural Resources & Energy
Makepeace, Scott	New Brunswick Department of Natural Resources & Energy
Mathews, Mike	New York State Department of Environmental Conservation
Mayer, Mike	University of Massachussets
McDonald, John	Massachussets Division of Fisheries and Wildlife
Morrison, Shawn	New Brunswick Cooperative Fish & Wildlife Research Unit
Nette, Tony	Nova Scotia Department of Natural Resources
Patterson, Brent	University of Saskatchewan, Saskatoon
Pekins, Peter	University of New Hampshire
Power, Vince	Nova Scotia Department of Natural Resources
Redmond, Gerald	New Brunswick Department of Natural Resources & Energy
Sabine, Dwayne	New Brunswick Cooperative Fish & Wildlife Research Unit
Sullivan, Michael	New Brunswick Department of Natural Resources & Energy
Suprock, Lori	Rhode Island Department of Fish & Wildlife
Wallingford, Bret	Pennsylvania Game Commission
Young, Steve	Fraser Forest Products Inc., Edmundston, NB



## PROVINCE / STATE CONTACTS: NEDTC 1996

<b>CONNECTICUT</b>	<b>Howard Kilpatrick</b> , Dept. Of Environmental Protection, Wildlife Division, Franklin Wildlife Management Area, 391 Route 32, North Franklin, Connecticut 06254; Tel: (860) 642-6528; Fax: (860) 642-7964
<b>DELAWARE</b>	<b>Ken Reynolds</b> , Delaware Division of Fish and Wildlife, P.O. Box 1401, Dover, DE 19903; Tel: (302) 739-5297
<b>MAINE</b>	<b>Gerald Lavigne</b> , Maine Dept. of Inland Fisheries & Wildlife, Hedin Hall, BMHI, 650 State St., Bangor, Maine 04401-5654; Tel: (207) 941-4477; Fax: (207) 941-4450
<b>MARYLAND</b>	<b>Doug Hotton</b> , Maryland Dept. of Natural Resources, Wildlife Division, 4220 Steele Neck Road, Vienna, MD 21869; Tel: (410) 376-3236; Fax: (410) 376-3916
<b>MASSACHUSETTS</b>	<b>John McDonald</b> , MA Division of Fisheries & Wildlife, Field Headquarters, Westborough, MA 01581; Tel: (508) 792-7270, ext. 121; Fax: (508) 792-7275; <i>eMail: mcdonald@state.ma.us</i>
<b>NEW BRUNSWICK</b>	<b>Gerald Redmond</b> , Fish & Wildlife Branch, Dept. of Natural Resources & Energy, P.O. Box 6000, Fredericton, New Brunswick, Canada E3B 5H1; Tel: (506) 453-2440; Fax: (506) 453-6699; <i>eMail: gredmond@gov.nb.ca</i>
<b>NEWFOUNDLAND</b>	<b>Shane Mahoney</b> , Research and Inventories Branch, Dept. of Natural Resources, P.O. Box 8700, St. John's, Newfoundland, Canada A1B 4J6; Tel: (709) 729-2817
<b>NEW HAMPSHIRE</b>	<b>Steve Weber</b> , New Hampshire Fish & Game Department, RR#2, Box 241, Lancaster, NH 03584; Tel: (603) 788-3164; Fax: (603) 788-3629
<b>NEW JERSEY</b>	<b>Daniel Ferrigno</b> , NJ Division of Fish, Game & Wildlife, Bureau of Wildlife Management, P.O. Box 418, Nacote Creek Research Stn., Port Republic, NJ 08241; Tel: (609) 748-2043; Fax: (609) 748-2057
<b>NEW YORK</b>	<b>Mike Mathews</b> , New York State Dept. of Environmental Conservation, Wildlife Resources Center, 108 Game Farm Road, Delmar, NY 12009; Tel: (518) 439-0098; Fax: (518) 439-0197
<b>NOVA SCOTIA</b>	<b>Tony Nette</b> , Nova Scotia Dept. of Natural Resources, 136 Exhibition Street, Kentville, NS B4N 4E5; Tel: (902) 679-6091; Fax: (902) 679-6176; <i>email: netteak@gov.ns.ca</i>
<b>ONTARIO</b>	<b>Dennis Voigt</b> , Ontario Ministry of Natural Resources, Box 5000, Maple, Ontario L6A 1S9; Tel: (905) 832-7247; Fax: (905) 832-7149; <i>email: voigtde@epo.gov.on.ca</i>
<b>PENNSYLVANIA</b>	<b>George Kelly/Bret Wallingford</b> , Pennsylvania Game Commission, RD2, Box 142K, Spring Mills, PA 16875; Tel: (814) 349-1234
<b>PRINCE EDWARD ISLAND</b>	<b>Randy Dibblee</b> , Dept. of Environmental Resources, P.O. Box 2000, Charlottetown, PEI C1A 7N8; Tel: (902) 368-4666
<b>QUEBEC</b>	<b>Gilles Lamontagne</b> , Ministere de l'Environnement et de la Faune, Direction de la faune et des habitats, 150, boul. Rene-Levesque Est, (5e), Quebec G1R 4Y1; Tel: (418) 644-8099; Fax: (418) 646-6863; <i>email: lamgi01@msmail.mef.gouv.qc.ca</i>
<b>RHODE ISLAND</b>	<b>Lori Suprock</b> , Rhode Island Fish & Wildlife Division, Box 218, West Kingston, RI 02892; Tel: (401) 789-0281; Fax: (401) 783-7490
<b>VERMONT</b>	<b>John Buck</b> , Vermont Dept. of Fish & Wildlife, 324 North Main Street, Barre, VT 05641-4109; Tel: (802) 479-3621; Fax: (802) 479-4272; <i>email: jbuck@anrbarre.anr.state.vt.us</i>
<b>VIRGINIA</b>	<b>Matt Knox</b> , Virginia Dept. of Game & Inland Fisheries, Rt. 6, Box 410, Forest, VA 24551; Tel: (804) 525-7522; Fax: (804) 525-7720
<b>WEST VIRGINIA</b>	<b>Jack Cromer</b> , West Virginia Division of Natural Resources, P.O. Box 67, Ward Raos, Elkins, WV 26241; Tel: (304) 637-0245; Fax: (304) 637-0250

## **Business Meeting - NEDTC**

### **DEER OPTIONS VIDEO**

This discussion centred around what the different jurisdictions thought of the final product, and what we should plan to do for further distributions. In general people felt it was an excellent product which did not need to be edited prior to wide distribution. They felt we should move forward with trying to market this product to the Discovery Channel using Gary Griffen's contacts. Weber will request permission from the Wildlife Administrators to move forward. If not, then he will try and get approval to investigate other funding sources for copying the tape, including developing a bulk order from individual state/provinces that wish to purchase copies.

Griffen would market the video to the Discovery Channel at a price of approximately \$15,000 of which Griffen would keep half this amount and we would convert the other half into videos that would then be distributed to states and provinces across North America for their use and further distribution at their discretion.

In terms of further distributions, we can either implement the above strategy and wait to acquire additional copies of the tape, move forward with putting together another order from the same firm that Ron Regan worked through last time, or a combination of the two. The NEDTC reps felt it appropriate to develop an attractive jacket for the video which may cost an additional couple of bucks per copy. Weber will coordinate the effort on this project.

### **DEER OPTIONS BOOKLET**

The third edition of the Deer Options Booklet has been printed. Thanks to John Organ and his donation of \$10,000 of Federal Aid administrative funds, we now have 32,000 copies of the booklet for distribution. The booklet has a new look and was very slightly modified to expand it's utility to other parts of the country.

Sixteen boxes containing 225 booklets each were distributed at the meeting and the rest are in storage at our headquarters building in Concord. Weber will contact states and provinces separately to distribute the remainder. Shipping charges will need to be collected at the rate of \$5.76 per box of 225.

### **DEER FARMING POSITION STATEMENT AND BEST MANAGEMENT PRACTICES**

A copy of the NEDTC approved position statement and recently updated Best Management Practices related to deer farming is enclosed in these transactions. This subject is controversial and these documents may not satisfy all jurisdictions. However, these BMP's offer more detail for individual jurisdictions to develop specific recommendations regulating deer farming activities. It did not appear feasible to define in more specific terms the details associated with such regulations due to differences in how each jurisdiction's regulatory process works.

### **CASE STUDIES BOOKLET**

John McDonald has completed a draft and will supply a copy to Rob Deblinger for distribution and discussion at the fall meeting of the Wildlife Administrators. Once this is complete, we can move forward with finishing the final version with photographs, etc., for printing and distribution. The objective is to have a final draft available for review by members of the NEWAA at their spring meeting.

### **IMMUNOCONTRACEPTION**

An updated list of all past and present immunocontraception research projects that the NEDTC members are aware of is included in these transactions.

### **WINTER FEEDING**

At the 1995 NEDTC meeting, Weber brought up the idea of developing a position statement on winter feeding of deer which could be used throughout the region. This topic was further discussed at the 1996 meeting, and there was strong support for such an effort. A possible approach could include the development of a high quality handout on the subject (one that prevented the potential for selective copying of feeding guidelines), and the development of a short educational video on the same topic.

Gerry Lavigne from Maine agreed to act as leader of such an effort if it was agreeable with NEWAA.

### **LOCATION OF NEXT NEDTC MEETING**

The 1997 NEDTC meeting is scheduled to be held in New York. Mike Mathews will be the co-chair and he will investigate the possibility of a joint meeting with the Midwest Deer Group.

# Appendix 1

## Deer Farming In The Northeast

### Position Statement of the Northeast Deer Technical Committee

**Date:** September 1996

**Definition:** Deer Farming is defined as "the holding in captivity and/or private or corporate ownership of any member of the deer family (*Cervidae*) for production, collection, sale, barter or consideration, of any deer, deer products or by-product (eg., meat hide, hooves, semen, ova, live deer, carcass, organ, dung, antlers)."

**Background:** Members of the NEDTC are concerned about the expanding deer farming industry in the Northeast. In the opinion of the Committee, the development of this industry has occurred (i) without an objective assessment of the risks posed to native wildlife populations, (ii) without adequate regulatory frameworks or guidelines to minimize risks to wildlife, (iii) resulting in the inappropriate designation of management agency authority (in many jurisdictions) to agriculture agencies, and (iv) without an adequate evaluation of the financial and personnel resources required by wildlife agencies to properly monitor the deer farming industry and respond to problems that develop.

The major concerns of the NEDTC with respect to deer farming are:

1. Significant risks of introducing diseases and/or parasites to free-ranging wild deer populations from farmed exotic deer species or translocated exotic and native cervids;
2. Introduction of feral populations of exotics via escapes and/or intentional releases could result in competition with native wildlife populations and habitat deterioration. Escaped farmed deer and sub-species could result in "genetic pollution" of wild native cervid populations;
3. Most agencies with management authority for deer farming are inadequately funded and their staff poorly trained to implement and monitor deer farming policies/strategies and respond to disease outbreaks and escapes;
4. Risks associated with devolving cervids as a public resource, thus facilitating private ownership and resulting in the development of legal markets for deer and their products. Markets for live deer and their products could negatively impact conservation and enforcement on free-ranging native deer populations through illegal capture and sale of wild cervid stocks and pressure to allow paid private shooting preserves.

**Additional Documentation:** "Deer Farming In The Northeast: Considerations & Consequences For Wildlife Management Agencies". 1995. Vecellio, G.M. and G.W. Redmond. Northeast Deer Technical Committee

Report: 30pp" is a review document prepared from deliberations and research by the Deer Farming Ad Hoc Committee established by NEDTC.

**Northeast Deer Technical Committee Position:** The NEDTC holds the following position with respect to deer farming:

- a) **Farming should not be permitted for cervid species that are considered native to North America or that could hybridize (under natural conditions) with native deer species.**  
Rationale: outlined in Background, above;
- b) **State, Provincial, and Federal Wildlife Agencies should be the legal regulatory authority for import, export, transport, use, and captive holding of all cervids (native and exotic).**  
Rationale: potential environmental risks of deer farming are greatest for free-ranging wildlife populations which natural resource agencies are mandated to manage and conserve;
- c) **Holding of cervids in captivity is acceptable for scientific, educational, or rehabilitation purposes.**  
Rationale: holding deer in captivity for a public benefit or wildlife management purposes is considered acceptable and fundamentally distinct from farming for individual or private gain;
- d) **Given that deer farming may continue to occur in some jurisdictions, the NEDTC recommends (a) minimizing the deer**

species that are permitted to be farmed, (b) establishing policies and regulations that minimize risks of escapes of non-native deer species, and that minimize the chance of introduction of diseases/parasites to free-ranging native wildlife populations, © establishing protocols to respond to escapes and disease/parasite outbreaks, and (d) establishing a process to periodically review the impact of the industry on free-ranging wildlife and assess levels of risk for allowing farming of additional species.

### **Recommended Best Management Practices For Deer Farming**

The following provides an elaboration of the "Best Management Practices (BMP)" adopted by the Northeast Deer Technical Committee on October 1995. Differences among states/provinces in the northeast with respect to legal and administrative mechanisms precludes recommending one specific model of best management practices for deer farming. However, it is recommended that all jurisdictions address the following 9 points when developing policies/ regulations/guidelines for deer farming:

1. **Emergency Response -** A strategy for dealing with emergencies (escapes, accidents, parasite/disease outbreaks) is a necessary component of BMP. The strategy should address procedures to be followed by both the deer farming industry and relevant government agencies in the event of an emergency. Included in the strategy should be the names and telephone numbers of key contact persons. Protocols should be identified for a number of "case" scenarios that may happen during transportation, handling, and herd management of farmed deer. A workshop should be developed and delivered periodically by the lead government agency for all persons involved in the industry. As a condition for licensing, each deer farm, deer transporter, and deer slaughterhouse should be required to have an approved, up-to-date emergency response strategy for their specific operation.
2. **Fencing, Handling, and Quarantine Facilities -** Each species of deer is somewhat unique in its tractability of handling, ability to escape containment, and environmental risk with respect to becoming established as feral populations. Requirements for fencing, handling facilities and quarantine facilities should reflect the above conditions. High quality deer fencing, support posts, and gates should be stipulated in policy/regulations for individual deer species. The deer farming industry has numerous designs for squeeze gates/chutes, etc. for herd health management, and these facilities should be developed to ensure efficient handling for veterinary care for the particular deer species under management. Special precautions should be taken if high-risk deer species are farmed and may include double-gating, double fencing, electric fencing, additional height requirements for fencing, and ground burial of fencing. Trees or other objects that may pose risks of damaging fences and gates should be removed. In jurisdictions where snow conditions warrant, regular snow removal around perimeter fences and gates should be required protocol.
3. **Parasite and Disease Precautions -** Annual herd health inspections/testing should be conducted by qualified veterinarians. In the event of a disease/parasite outbreak, testing should occur more frequently. Development of protocols for herd testing should be done with input from federal and state/provincial agriculture departments. The risk of disease and parasite epizootics will vary among regions, however current monitoring and testing should focus on Tuberculosis (*Mycobacterium bovis*), Brucellosis (*Brucella abortus*), Chronic Wasting Disease, Besnoitiosis (*Besnoitia tarundi*) and Muscle Worm (*Elaphostrongylus cervi*). Wildlife agencies should be involved in development of all herd health management protocols when risks exist for free-ranging native wildlife.
4. **Deer Industry Facility Inspections -** Regular, periodic facility inspections of deer farms and deer slaughterhouses should be conducted with participation by wildlife agencies. The role of wildlife agencies should focus on ensuring that fencing standards are maintained to prevent/minimize escape and contact of farmed deer with free-ranging wildlife.
5. **Identification of Farmed Deer -** Operators of deer farms must ensure that all stock can be individually identified. Live farmed deer should also be tagged in such a way that they can be easily identified as captive deer by visual inspection. This is especially important in the event of escape, so that agency staff and the public can recognize a free-ranging farmed deer species.
6. **Policy and Legislation -** Clear and comprehensive policies should be developed and implemented in all jurisdictions that permit deer farming. Legislation is necessary to ensure compliance with deer farm policies. Appropriate penalties should be incorporated into legislation/regulation to serve as a deterrent for non-compliance. A mechanism to monitor and enforce the policies/regulations should be ensured. Policy and legislation should be reviewed and updated regularly.



7. **New Species Introductions -** New species proposed for deer farming should undergo a comprehensive review for environmental impact and market feasibility. A formal review process involving government agencies, the deer industry, and relevant non-government interest groups should be established in all jurisdictions that permit deer farming. A protocol for risk assessment and decision-making should be developed and implemented for each review to minimize political influence. Proposed species that pose risks to native free-ranging wildlife only should be approved on an experimental basis for a specific time-period and under strict conditions, until the actual risk level can be demonstrated and further assessed.
8. **Sport Shooting of Farmed Deer -** In the interest of "hunting ethics" and the concepts associated with "fair chase", captive held deer should never be used for sport shooting purposes even in circumstances where hiding-cover is available within enclosures. Sport shooting of farmed deer will have a negative effect on the public's perception of hunting of free-ranging wildlife. Hunting is a vital management tool for wildlife agencies and generates significant economic revenues. Actions such as sport shooting of farmed deer would be expected to erode support for wildlife management programs.
9. **Record-Keeping -** Deer farm operations, slaughterhouses, transporters, and dealers should be required to implement adequate record-keeping procedures for animals held in captivity and be held accountable (via regulation) for inventories. These records should be reviewed by the appropriate management agency on a regular periodic basis.

## Appendix 2

### Status of Immunocontraceptive Research and Management in the N.E.

#### NEW YORK

##### **Fire Island National Seashore: Jay Kirkpatrick & HSUS**

**Results:** During the 1994 fawning season, 51 of 56 adult does receiving 2 inoculations of PZP during 1993 were relocated, and 20 of them produced fawns for a fawning rate of 39.2%. Of the 20 treated does producing fawns, the number of fawns/doe was 1.40 which is slightly higher than untreated does in 1993. One adult doe treated with 2 inoculations in 1993 is known to have died during 93/94 and 9 others have either died or emigrated from the study areas. During the 95 fawning season, 41 of 56 adult does receiving 2 inoculations of PZP during 93 and a booster inoculation in 94 were relocated. Of the 41 treated adult does relocated in 95, a total of 6 produced fawns and 35 did not produce fawns by 10/29/95, for a 1995 fawning rate of 14.6%. Of the 6 treated does producing fawns, the number of fawns/doe was 1.17, which is significantly lower than the 1.40 ration in 1994. One adult doe given a booster inoculation in 1994 is known to have died during 94/95 and 3 others have either died or emigrated from the study areas. Also, during the 95 fawning season, 29 of 38 adult does receiving 2 inoculations of PZP in 1994 were relocated and a total of 8 produced fawns and 21 did not produce fawns by 10/29/94 for a fawning rate of 27.6%. It is uncertain whether 2 treated adult does in the Ocean Beach area produced fawns during 1995. Of the 8 does producing fawns, the number of fawns/doe was 1.13. These results may be revised later in the year if a few missing does are relocated.

**Discussion:** Based on the above data it is apparent that the 3 objectives were met successfully. First, over 90% of the adult doe population between Kismet and Dunewood was located, identified, and treated with either an annual booster inoculation or 2 initial inoculations. Of the 54 living adult does known to inhabit the Kismet to Dunewood area, 51 (94.4%) of them were located identified and inoculated. Second, only 14.6% of the adult does treated with 2 inoculations in 1993 and a booster inoculation in 94 produced fawns in 1995. This is significantly lower than the 39.2% fawning rate for adult does after 1 year of treatment. Third, it was proven, by means of random testing, that different deer monitors in different communities were indeed able to correctly identify the same deer based on its markings.

During 1994, 39.2% of adult deer treated remotely with 2 inoculations of PZP gave birth to fawns. While this number is significantly higher than the 0% reported for a captive population of 10 animals and a 0% rate for free-ranging population given an initial inoculation by hand followed by an inoculation by dart, it should be noted that all does treated on FINS received both inoculations by means of darts fired from distances ranging from 4-25 metres. After 2 years of treatment this number was reduced significantly (14.6%) as a result of remedying 2 factors: (1) does treated with 2 inoculations in 1993 were treated with the assumption that all darts fired and

(2) the assumption that all darts gave a complete injection upon impact. These 2 factors were remedied in 1994 by checking to see if in fact the dart's plunger was all the way forward after striking the doe. As a result of this inspection routine, several darts had to be cleaned and fired a second time and a few darts had to have the vaccine removed and placed in a new dart, thus requiring a few deer to be darted 3 times to make sure they received a complete inoculation. One other factor that should be mentioned is that 4 of the darts that fired completely left a small amount of vaccine on the doe's fur. It is not known how much vaccine is lost when this occurs or how many times it may have occurred and went unnoticed.

The number of fawns produced in 1995 after 2 years of treatment and after correcting some technical errors that may have occurred in 1993, show a significant reduction over 1994 numbers. Thus, it is apparent that once free-ranging adult white-tailed deer does receive 2 successive years of PZP treatment, they are unlikely to produce fawns. The next step of the FINS deer immunocontraceptive project will be to show a reduction in the number of deer inhabiting the Kismet to Dunewood areas.

**Seneca Army Depot:** Milo Richmond & Paul Curtis, Cornell University

Initial work will test the efficacy of both GnRH and PZP immunocontraceptive agents produced by the Denver Wildlife Research Center on a population of 60 does and 15 bucks on a 750 acre fenced site. Twenty does will be treated with each agent and 20 will be controls. Fifteen bucks will also be treated with GnRH. All deer will be collared and all treatments will be by remote delivery.

**Irondequoit:** William Porter, Syracuse CESF

Research is intended to test the efficacy of remotely treating wild free roaming deer with PZP. PZP for this work will be obtained under the Investigation of a New Animal (INAD) permit held by HSUS. All treated deer will initially have to be captured and collared. The work is intended to determine population effect on subpopulations of deer in the Irondequoit area.

#### **CONNECTICUT**

**Remington Property, Bridgeport:** Anthony Denicola & Robert Swihart, Purdue University

Proposal to investigate the effectiveness of steroids, prostaglandin-F, and luteinizing hormone immunocontraceptives. Also, to evaluate the long term effects of annual exposure of immunocontraceptive of PZP.

**Bluff Point Coastal Reserve, Groton:** Allen Rutberg, HSUS

Proposal to control overabundant deer herd; site review by HSUS determined Bluff Point was not suitable at this time.

**Groton Long Point & Mumford Cove Communities:** Allen Rutberg, HSUS

Proposal to reduce urban deer herd. Currently under review with a potential starting date of August 1997.

#### **MARYLAND**

**Gaithersburg:** Jay Kirkpatrick & HSUS

One active study using PZP vaccine is still being finalized with a targeted 4 year duration. Four goals are (1) to compare the contraceptive effectiveness of vaccine preparation that uses carbopol as an adjuvant to the current standard preparation that uses FCA and FIA; (2) to evaluate the contraceptive effectiveness of two shot protocols in which the initial vaccination is administered in the winter prior to the autumn breeding season; (3) to determine whether PZP may be safely administered to one or two week old fawns, and whether such early inoculated fawns will be satisfactorily contracepted following a single subsequent shot in the summer before their first breeding season; (4) to test the efficiency of PZP delivery to deer in a typical suburban deer habitat island.

**VIRGINIA** Smithsonian Conservation Research Center: McShea

**MASSACHUSETTS** Newton, Turner

**NEW HAMPSHIRE** UNH: Pekins and Kirkpatrick

**NEW JERSEY** Rutgers: Larry Katz